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September 22, 2000

Via Messenger Delivery

Bradley Stimple
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 5
Superfund Division
Emergency Response Branch
77 West Jackson Blvd., SE-5J
Chicago, IL 60604

Re: Nicor Mercury Sites – Scrap Yards
Administrative Order Pursuant to Section 106(a) of CERCLA

Dear Mr. Stimple:

As mentioned in John Watson's letter dated September 19, 2000, Nicor has designated Jim Huff, of Huff & Huff, as their Project Coordinator and Heritage Environmental Services as their contractor for conducting the remediation under the above-referenced order. Enclosed you find information regarding the qualifications of both Jim Huff and Heritage Environmental Services.

Please feel free to call if you have any questions, or need any additional information regarding Jim Huff or Heritage's past experience in such matters.

Very truly yours,

Angela Foster-Rice

Angela Foster-Rice

cc: Thomas Krueger (via facsimile, without attachments)

CH02/22084434.1

JAMES E. HUFF, P.E.

Education:

1966-1970	Purdue University, West Lafayette, Indiana B.S. in Chemical Engineering
1970-1971	Purdue University, West Lafayette, Indiana M.S.E. in Environmental Engineering
1974-1976	University of Chicago Graduate School of Business. Part time
Honors:	Omega Chi Epsilon (Chem. Engr. Honorary) President's Academic Award Graduated with Distinction Fellowship from the Federal Water Quality Admin.
Thesis:	"Destabilizing Soluble Oil Emulsions Using Polymers with Activated Carbon," Major Professor, Dr. James E. Etzel

Experience:

Since 1980, Mr. Huff has been vice president of Huff & Huff, Inc. responsible for projects pertaining to wastewater treatment, hazardous waste management, ground water and soil remediation, and compliance assessments. A significant portion of his time has been devoted to assisting clients on day-to-day environmental issues; from permitting, training, to setting up programs for compliance and ISO 14000. Mr. Huff has designed industrial wastewater treatment plants ranging in size from less than one thousand gallons per day to eight million gallons per day. These designs have applied to various industrial sources, such as, foundries, plating, printed circuit boards, organic chemical and pharmaceutical manufacturers. Mr. Huff has also directed twelve municipal wastewater treatment design projects and five country club on-site wastewater systems over the past fifteen years. Two novel in-stream aeration systems, using high-purity oxygen on a shallow Illinois stream, were designed and installed. Mr. Huff was retained by a community to direct (contract O&M) the operations of a new 1.5 mgd tertiary treatment plant until the system was lined out and a superintendent hired.

In the area of Water Quality Analysis, Mr. Huff has completed a variety of projects, including both biological and chemical assessments. Mr. Huff has directed studies for two of the Quad Cities to assess the environmental impact of water treatment plant discharges on the Mississippi River. These studies included evaluating various locations along the Mississippi for the presence of mussel beds, the potential presence of endangered species, primarily the *Lampsilis higginsi*, and whether the areas were important for fish spawning. The scope-of-work for the mussel surveys developed by Mr. Huff were reviewed and approved by U.S. Fish & Wildlife, IDOC, IEPA, and the Illinois Natural History Survey. Approvals for both of the outfalls were secured. On the Fox River, Mr. Huff was project manager for a group of municipal dischargers on a project to collect and analyze weekly water quality samples along the river, its tributaries, and outfalls at over 30 locations to establish a better database on un-ionized ammonia levels. Mr. Huff has directed fish and benthic surveys for industrial, storm water, and municipal wastewater discharges located on the following waterways: Cedar Creek, Deep Run, Flint Creek, Thorn Creek, North Kent Creek, Chicago Sanitary & Ship Canal, and Casey Fork Creek.

In the hazardous waste field, over sixty industrial plants have relied on Mr. Huff's expertise for complying with the regulations. Mr. Huff has provided the required RCRA and DOT training, prepared inspection plans, contingency plans, training plans, and waste minimization plans. Mr. Huff directs H&H's underground storage tank (UST) closure and remediation projects for a variety of clients. Both petroleum and solvent tank releases have required regulatory reporting and remediation. Tank systems have varied in size from single units to 50 USTs.

Remediation designs, many associated with underground storage tank releases, are a major portion of Mr. Huff's activities. He has designed and implemented landfarming, soil vapor extraction, air sparging, ground water pump and treat systems utilizing batch biological reactors, activated carbon, air strippers, and in situ enhanced bioremediation. Mr. Huff has completed treatability studies at a Federal Superfund site for cyanide and thiocyanate destruction in ground water, including operation of a 4,000 gpd pilot reactor at the site and has conducted a Feasibility Study (FS) for a major chlorinated solvent release at a State Superfund site. The selected remedy for this state site was the first in Ohio that recognized intrinsic bioremediation as part of the remedy. Mr. Huff has directed over fifteen hazardous waste closures of TSD facilities, ranging from drum storage areas to the complete clean-up of a 27-acre abandoned manufacturing facility. This abandoned manufacturing site included plating solutions, cyanide bearing sludges, oils, and over 20,000 gallons of virgin chemicals requiring placement. Mr. Huff has also been the project manager on the site investigation at two former manufactured gas plants, and he has completed the risk assessment and a remedial design that includes taking the coal tar to a hot-mix asphalt plant for one of these gas plant sites.

Compliance assessment is a significant part of Mr. Huff's work. Over 100 environmental audits of manufacturing firms have been conducted by Mr. Huff over the last fifteen years. These audits have included potential acquisitions as well as on-going industrial operations. Mr. Huff has also been involved in siting and permitting of new industrial facilities, including a mining operation.

From 1987 through 1990, Mr. Huff was a part-time faculty member, teaching the senior level environmental courses in the Civil Engineering Department at IIT-West in Wheaton, Illinois.

From 1976 to 1980, Mr. Huff was Manager of Environmental Affairs for the Armak Company (now Akzo Nobel Chemicals), a diversified industrial chemical manufacturer. At Armak, Mr. Huff was responsible for all environmental activities at eight plants located throughout the United States and Canada. Technical work included extensive biological and chemical treatability studies as well as designing new facilities, including two wastewater pretreatment facilities, a land application system, and an incinerator system.

Previously, Mr. Huff was an Associate Environmental Engineer in the Chemical Engineering Section at IIT Research Institute (IITRI). The work included extensive testing of wet scrubbers for odor control in the rendering industry as well as carbon adsorption evaluations. Also Ozone/UV was tested as a treatment method for cyanide, PCB's, RDX, HMX, and TNT. At Mobil Oil's Joliet refinery Mr. Huff was employed as an Advanced Environmental Engineer during the construction and start-up of the largest grassroots refinery ever constructed. Mr. Huff was responsible for wastewater, water supply, solid waste, and noise abatement issues at the refinery from 1971 to 1973.

Membership

Consulting Engineers Council of Illinois
Environmental Committee (1999 – Present)
Chairman (June 2000 – Present)
Water Environment Federation Member
Illinois Water Environment Federation
National Water Well Association
Certified Class 2 and Class K Sewage Treatment Works Operator in Illinois

Licenses: Registered Professional Engineer, Illinois and New Jersey

Papers:

"Ozone-U.V. Treatment of TNT Wastewater," E.G. Fochtman and J.E. Huff, International Ozone Institute Conference, Montreal, May 1975.

"Characterization of Sensory Properties" Qualitative, Threshold, and Supra-Threshold," J.E. Huff and A. Dravnieks, American Water Works Assoc. Seminar, Minneapolis, MN, June 1975.

"Optimizing Wet Scrubber Systems for Odor Control in the Rendering Industry," R.H. Snow, J.E. Huff, and W. Boehme, Purdue Air Quality Conference, Lafayette, IN, November 1975.

"Control of Rendering Plant Odors by Wet Scrubbers: Results of Plant Tests," R.H. Snow, J.E. Huff, and W. Boehme, APCA Conference Boston, MA, June 1975.

"Asbestos Manufacturing Waste Disposal and Utilization," P. Ase, J.E. Huff, L.L. Huff, C.F. Harwood, and D. Oestreich, Mineral Waste Utilization Symposium, Chicago, IL, April, 1976.

"Alternative Cyanide Standards in Illinois, a Cost-Benefit Analysis," L.L. Huff and J.E. Huff, 31st Annual Purdue Industrial Waste Conference, Lafayette, IN, May 1976.

"Cyanide Removal from Refinery Wastewaters Using Powdered Activated Carbon," J.E. Huff, J.M. Bigger, and E.G. Fochtman, American Chemical Society Annual Conference, New Orleans, LA, March 1977. Published in Carbon Adsorption Handbook, P.N. Cheremisinoff and F. Ellerbusch, Eds., Ann Arbor Science Publishers, Inc., 1978.

"Industrial Discharge and/or Pretreatment of Fats, Oils and Grease," J.E. Huff and E.F. Harp, Eighth Engineering Foundation Conference on Environmental Engineering, Pacific Grove, CA, February, 1978.

"A Review of Cyanide of Refinery Wastewaters," R.G. Kunz, J.E. Huff, and J.P. Casey, Third Annual Conference of Treatment and Disposal of Industrial Wastewater and Residues, Houston, TX, April 1978. Published as: "Refinery Cyanides: A Regulatory Dilemma," Hydrocarbon Processing, pp 98-102, January, 1978.

"Treatment of High Strength Fatty Amines Wastewater - A Case History," J.E. Huff and C.M. Muchmore, 52nd Conference - Water Pollution Control Federation, Houston, TX, October 1979. Published JWPCF, Vol. 54, No. 1, pp 94-102, January, 1982.

"An Overview of Environmental Regulations," E.F. Harp and J.E. Huff, Soap & Detergent Association Annual Meeting, Boca Raton, FL, January 1980.

"A Proposal to Repeal the Illinois Pollution Control Board's Construction Permit Water Regulations," J.H. Russell and J.E. Huff, Chicago Bar Record, Vol. 62, No. 3, pp 122-136, Nov.-Dec., 1980.

"Disinfection of Wastewater Effluents in Illinois-A Cost:Benefit Analysis," L.L. Huff and J.E. Huff, Illinois Water Pollution Control Association 2nd Annual Conference, Kankakee, IL, May 20, 1981.

"Measurement of Water Pollution Benefits - Do We Have the Option?" L.L. Huff, J.E. Huff, and N.B. Herlevson, IL Water Pollution Control Assn 3rd Annual Conference, Naperville, IL, May 1983.

"Evaluation of Alternative Methods of Supplementing Oxygen in a Shallow Illinois Stream," J.E. Huff and J.P. Browning, IL Water Pollution Control Assn 6th Annual Meeting, Naperville, IL, May 7, 1985.

"Environmental Audit for Wastewater Compliance," J.E. Huff, Federation of Environmental Technologists Environmental '86 Seminar, Milwaukee, WI, March 5, 1986.

"Technical and Economic Feasibility of a Central Recovery Facility for Electroplating Wastes in Cook County, IL," J.E. Huff and L.L. Huff, 1986 Governor's Conference on Science and Technology in Illinois, Rosemont, IL, Sept. 3, 1986.

"Hazardous Waste Closure Procedure," J.E. Huff, Federation of Environmental Technologists Seminar, Rockford, IL, Dec. 17, 1986.

"Training & Contingency Plan Requirements Under the Hazardous Waste/Right-To-Know/OSHA Regulations," J.E. Huff, Federation of Environmental Technologists Environment '88, Milwaukee, WI, March 9, 1988.

"Biomonitoring/Bioassay," J.E. Huff, Federation of Environmental Technologists Seminar, Harvey, IL, December 11, 1989.

"Storm Water Discharges," J.E. Huff, Federation of Environmental Technologists Environment '90 Seminar, Milwaukee, WI, March 7, 1990.

"Cleanup Standards-Past, Present and Future," J.E. Huff and D.O'Neill, Chicago Bar Association's Environmental Law Seminar "Underground Tanks: Down and Dirty," Chicago, IL, June 8, 1993.

"Engineering Aspects of Individual Wastewater System Design," J.E. Huff, 22nd Annual Northern Illinois Onsite Wastewater Contractors Workshop, St. Charles, IL, February 27, 1995.

"Illinois Site Remediation Program," J.E. Huff, Institutional Lenders Environmental Focus Group, Chicago, IL, March 14, 1997

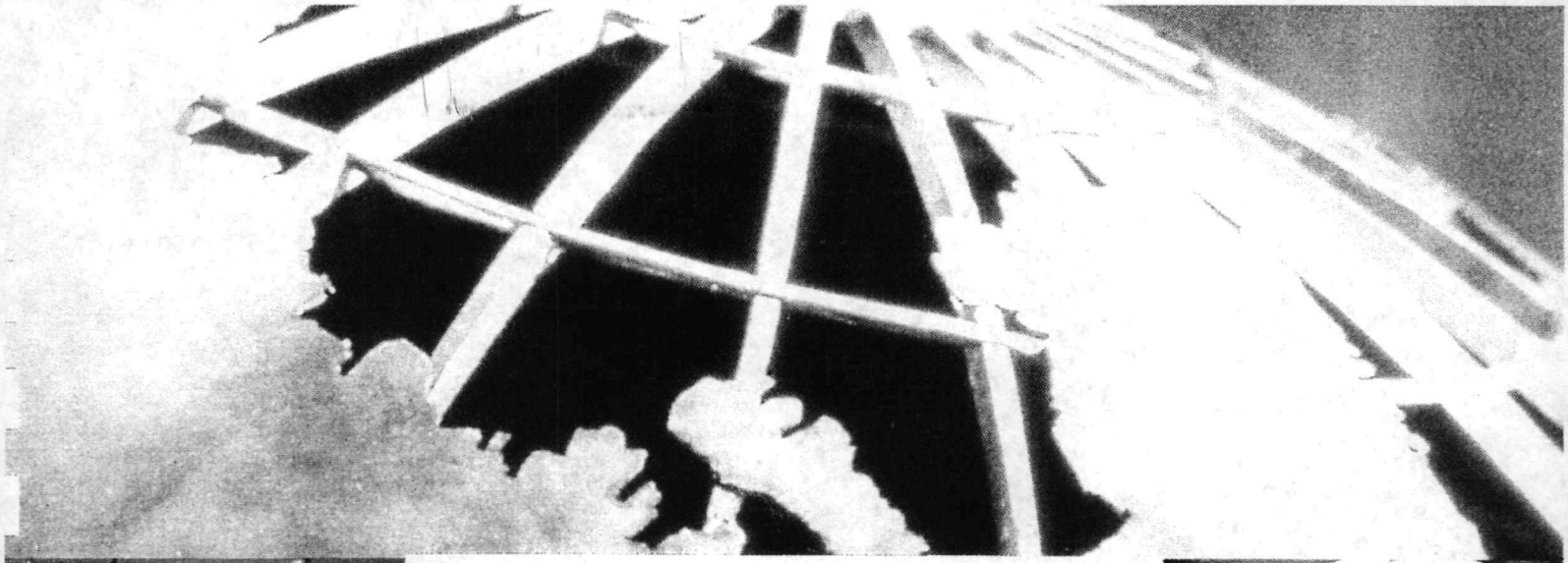
"Cleaning Up Contaminated Property in Illinois," J.W. Watson and J.E. Huff, Midwest Environmental Corporate Counsel Association, September 18, 1997.

"Total Maximum Daily Loadings (TMDL) and Ammonia Conditions in the Fox River Waterway," J. E. Huff and S. D. LaDieu, Illinois Water '98 Conference, Urbana, IL, Nov. 16, 1998.

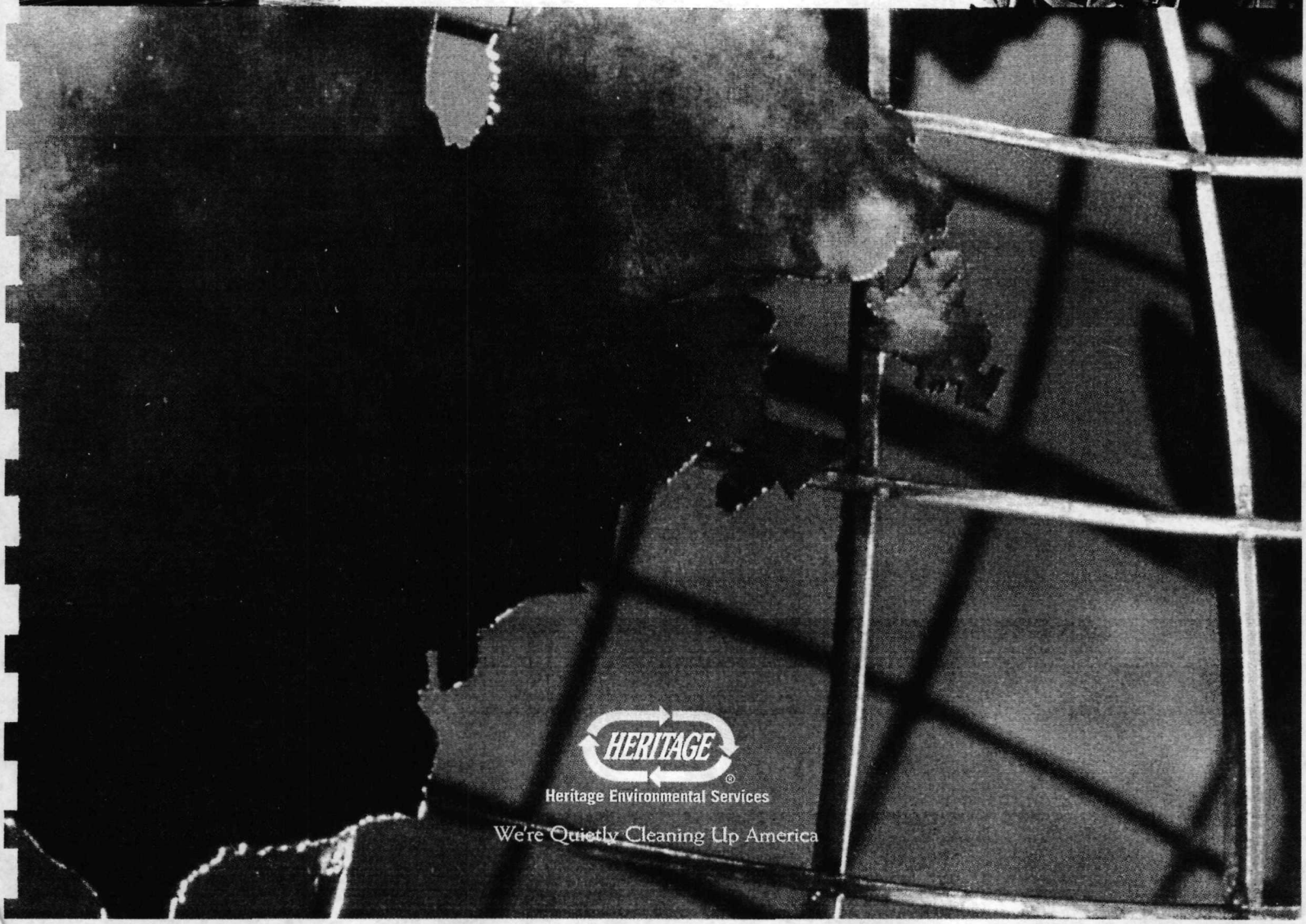
"The Illinois Ammonia Water Quality Standards: Effluent Implications & Strategies for Compliance," L.R. Cunningham & J. E. Huff, Illinois Water '98 Conference, Urbana, IL, Nov. 16, 1998.

"Beneficial Reuse of Coal Tar Impacted Material in Recycled Asphalt-LaGrange Illinois Case Study," J.E. Huff, Midwest Energy Association's Environmental Management Conference, Denver, CO, October 5, 2000

"Impact of a High Sulfate and TDS Industrial Discharge on Municipal Wastewater Treatment," J.L. Daugherty, J.E. Huff, S.D. LaDieu, and D. Martch, WEFTEC 2000, Anaheim, CA, October 17, 2000.



STATEMENT OF QUALIFICATIONS AND EXPERIENCE



HERITAGE®

Heritage Environmental Services

We're Quietly Cleaning Up America

STATEMENT OF QUALIFICATIONS AND EXPERIENCE

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INTRODUCTION

Heritage Environmental Services, LLC is a part of the Heritage Group, which has been in business for more than 60 years. The Heritage Group has companies involved in the industries of petroleum refining and marketing, environmental services, asphalt refining, and heavy and highway construction. Heritage Environmental Services pulls from the common resources and diverse talents of the individual companies, using a team approach, to provide customers with innovative and effective solutions.

By pooling resources and technology, we are able to take an idea, explore its possibilities and make it work for the customer. Heritage customers benefit from the responsiveness and services of a small company and the technology and expertise of the larger Heritage Group.

Heritage has always stood behind its products and results. We have a strong customer commitment and an absolute obligation to do things correctly. We foster long-term relationships and partnerships with our customers, and ensure that we can provide long-term service to those customers.

Heritage Environmental Services, LLC fulfills these commitments by:

Creating a work environment which respects the importance of everyone's contribution to quality service. This is done by providing a safe work environment, requiring strict compliance with regulatory issues, and giving everyone recognition for their contribution to the company's success.

Focusing on customer needs and satisfaction. Finding the type of service the customer wants, what constitutes good service, what is a fair price, and delivering it. Then improve it and keep improving.

Leading the market through research and innovation. Knowing and understanding all proposed regulatory action affecting the client and preparing for them. Consistently scoring among the highest in facility and laboratory audits. Receiving recognition for excellence in safety. Applying technology that allows the customer to operate consistently and in compliance.

Most important, Heritage is a champion for the customer. We share knowledge, help the customer solve compliance problems, build better treatment plants, and supply them with better tools and services to reduce their environmental cost.

All of these things combine to make Heritage a leader in the environmental services field. >

HERITAGE GROUP OVERVIEW

Heritage Group

The Heritage Group is involved in mining, asphalt research and development, asphalt refining and production, heavy highway construction, petroleum refining and distribution, gasoline retail marketing, waste oil recycling, industrial waste treatment and disposal, waste transportation, environmental remediation and engineering, and laboratory services.

The Heritage Group companies include:

Asphalt Materials, Inc.
Asphalt Refining Co.
Bituminous Materials & Supply
Calumet Lubricants
Crystal Clean Parts Washer Service
Crystal Flash Petroleum Corp.
Emulsicoat, Inc.
Fairchild Oil Co.
Heritage Environmental Services, LLC
Heritage Research Group
Hoosier Asphalt & Chemical Co.
Laketon Refining Corp.
Meshberger Stone, Inc.
Michigan Crystal Flash Petroleum Corp.
Micronutrients Div. of Heritage Technologies LLC
Milestone Contractors LP
Petroleum Management
Trico Pipeline, Inc.
U.S. Aggregates, Inc.
White Rock Quarry
Xeray Systems, LLC

The Heritage Group is headquartered in Indianapolis, Indiana and operates production facilities, treatment plants, laboratories, response centers, retail outlets, and refineries in eight (8) states and employs more than 3,000 people.

Heritage Environmental Services, LLC (Heritage)

Heritage Treatment Centers began in 1970 as "Industrial Liquid Waste Disposal" (ILWD) providing oil reclamation and industrial waste disposal services. The ILWD processing facility and landfill were in Bartholomew County, Indiana. Both of the original facilities have since closed. The landfill was one of the first in the nation to complete its operation in full compliance with the new EPA landfill closure regulations.

In 1978, the business changed its name to ILWD, Inc. and a new industrial waste treatment facility was constructed in Indianapolis. A few years later, ILWD constructed a RCRA "monofill" in Putnam County to provide secure disposal for the treated solids that are generated by its reclamation and treatment operations. This hazardous waste landfill, which accepts pretreated waste from our plant, is one of the first in the nation to receive a full Part B RCRA permit from the U.S. Environmental Protection Agency.

In 1985, ILWD constructed an oil reclamation and waste treatment facility in Charlotte, North Carolina.

This facility serves the east coast and southeast. A third treatment plant was opened in Kansas City, Missouri in 1987.

In 1987, ILWD, Inc. changed its name to Heritage Environmental Services, Inc. (Heritage). In March of 1988, after a three year partnership, Heritage acquired a 100% interest in Petrochem Services, Inc., an environmental remediation and emergency response company which owned and operated its own waste industrial liquid treatment plant in Lemont, Illinois.

Wastes processed by Heritage include a broad variety of waste oils, oil emulsions and sludges, waste acids, caustics, chrome and other heavy metal plating wastes, cyanides, inorganic sludges, low flashpoint waste waters, leachates, and wastewater treatment sludges. Heritage blends supplemental fuels for cement kilns and packages solid organic, solvent, paint, and ink wastes for incineration.

Lab pack chemicals and containerized waste are also treated. Heritage also provides packaging and transportation services through Heritage Container Management Services.

Heritage owns and operates four (4) waste treatment and disposal facilities, one (1) environmental laboratory, seven (7) remedial and emergency response centers, and a RCRA hazardous waste landfill. In addition to these fixed facilities, Heritage operates a number of long-term onsite treatment plants, which it designed and constructed.

Treatment Group

Indianapolis Waste Treatment and Recovery Plant

The Indianapolis facility is one of the largest privately operated commercial waste treatment facilities in the nation and is fully licensed to accept, treat, and store hazardous waste. The facility has a Federal Part B permit.

A portion of the facility recovers oils from mixed waste streams. Oils are processed through heat treatment, centrifuge separation and chemical methods, and conditioned to meet a #4 fuel oil specification. Waste oils processed include motor oils, tank bottoms and cleanings, CPI oils and sludges, industrial coolants and process oils.

Non-oil aqueous waste streams undergo a series of treatment steps to destroy cyanide, reduce hexavalent chrome, neutralize corrosives, precipitate metals, detoxify hazardous elements, remove solids and other compounds. The solid and sludge fraction is separated by physical and chemical methods and dewatered by plate and frame filter press technology. Toxic or reactive compounds such as cyanides are batch treated in special segregated process systems. Corrosives undergo controlled neutralization to prevent adverse reactions with other compounds.

Heritage also treats a broad variety of small container chemicals from laboratories. In Heritage's depack center, drums of lab chemical bottles are inventoried, segregated, tested and emptied for processing.

The facility accepts material in bulk tank shipments, drums, and sealed boxes.

The by-products of the treatment processes are:

> Filter cake
> Wastewater
> Recycled oil

The filter cake is taken to the Heritage Part B - permitted RCRA landfill in Putnam County, Indiana. The only waste this landfill accepts is stabilized waste from the Heritage Indianapolis treatment facility.

The waste water is pumped to holding tanks, tested, and discharged to the city sewer which flows to the Indianapolis DPW tertiary treatment system, under the terms of a strict permit.

The recycled oil is sold as a fuel oil to industries which operate large, high efficiency boilers and to asphalt companies for use as fuels.

The Indianapolis plant is permitted to treat most F, K, and D listed waste. The facility will not accept PCB contaminated waste.

Chicago Waste Treatment and Recovery Plant

The Lemont treatment facility is fully licensed by the USEPA and Illinois EPA for treatment, storage and recovery of hazardous and non-hazardous waste.

It has 23 tanks ranging in size from 6,000 to 30,000 gallons each and has a total capacity of 371,000 gallons. The tanks rest on a concrete floor surrounded by a concrete dike with 110% spill protection. Air quality is assured by carbon adsorption units.

The plant has multiple transfer capabilities including drum, bulk tanker and barge. The facility is located on the Chicago shipping canal.

Wastes accepted for treatment and recovery include:

> Spent solvents
> Refinery waste
> Ignitable D001
> Corrosive D002
> Reactive D003 (sulfides)
> EP Toxic Metals D004, D006, D007, D008

Treatment capabilities include:

>Separation of hydrocarbon phases from water and solids.
>Neutralization of reactive sulfides.
>Fuel blending.
>Decanting waste from drums.
>Neutralization of corrosives.
>Dewatering of liquid sludges.

The Lemont facility includes a state of the art automated drum handling system, a lab pack management system and an aerosol can unit.

The facility's on-site laboratory completes quality control and screening analysis for waste acceptance. The facility utilizes various testing procedures, including off-site laboratories for in depth analysis to

ensure that waste is properly treated to meet environmental standards.

Kansas City Waste Treatment and Recycling Plant

The Heritage Environmental Services' facility in Kansas City, Missouri, serves as a major fuel blending facility and aqueous waste treatment plant.

The physical/chemical treatment portion of the facility can process industrial waste water and sludges. The facility can accept drum, truck and rail shipments.

The facility is a RCRA TSD permitted by the USEPA and the State of Missouri. The facility also has a Resource Recovery Certificate from the State of Missouri.

Charlotte Waste Treatment and Recycling Plant

In 1985, Heritage opened a waste oil processing facility in Charlotte, North Carolina. Shortly thereafter, hazardous waste drum storage and supplemental fuels bulk storage facilities were added. The Charlotte treatment facilities includes an aqueous waste treatment capacity which services the southeast market. Charlotte can handle tank truck, drum, small quantity generator and rail shipments.

RCRA Hazardous Waste Landfill

The Heritage secure RCRA landfill, located in Putnam County, Indiana, has been "state-of-the-art" in its design and operation since it was opened in 1981.

The facility has had a final RCRA Part B Permit since November, 1986. New cells include dual synthetic liner, leachate collection, a leak detection system, a three (3) foot compacted clay liner, and an underdrain system for further protection. As cells are completed, a top synthetic liner is used to minimize leachate generation from infiltration.

The facility is surrounded by a network of monitoring wells. The groundwater monitoring system is re-evaluated annually and monitoring wells are added as needed to assure sound protection of the groundwater.

In addition to the engineered features, the Heritage Landfill is physically and hydrogeologically isolated. Glacial till in excess of 100 feet in depth underlies the facility. The permeability of the glacial till approaches 10^{-8} centimeters per second. The limited presence of groundwater and the high cation exchange capacity of the soil also provide natural protection.

The site only receives Heritage treatment residues in the form of bulk stabilized filter cake and soils. There are no drums or refuse in the site. This landfill has an estimated life of more than fifty years.

Remediation Group

The project and engineering group of Heritage were merged by Heritage to an environmental remediation/ engineering company.

In 1981, a remediation division was opened in Louisville, Kentucky, to service the Ohio River basin. In 1985, similar remediation and emergency response centers were opened in St. Louis, Missouri and Indianapolis, Indiana. A Toledo, Ohio remediation division opened in 1990.

The new Heritage Industrial Service division, which began operating in the Chicago area providing pressure cleaning, "Supersucker" trucks, waste handling and other industrial services. Industrial Maintenance offices are now located in East Chicago, IN and Cincinnati, OH.

Engineering Group

Heritage's engineering and consulting services business was formed to help its customers with their compliance and site contamination problems. Today Heritage's consulting services group provides technical support in enforcement cases, contaminated facility investigations, site decontamination services, geological and hydrogeological investigations, underground storage tank management programs, environmental audits, industrial hygiene compliance and real estate assessment services. Engineering Services also include treatment system treatability studies, process design, facility construction, startup services and routine operations. Heritage has engineering staffs in Indianapolis, Chicago and Louisville.

Heritage's Major Projects Group performs remedial construction activity on Superfund projects or at similar sites.

Heritage's remediation and engineering group provides a broad range of environmental contracting, engineering and consulting services to private and public organizations.

The projects Heritage has performed have ranged from $500 to $18,000,000 and have encompassed a variety of services including: soil excavation and removal, liner installation, landfill capping and closure, recovery and monitoring well installation, facility/equipment decontaminations, tank management and remediation, risk-based assessments, permit applications and site investigations. We implement onsite treatment technologies such as *in-situ* bioremediation, soil vapor extraction, soil stabilization/fixation, dewatering technologies, ion exchange, air stripping, treatment system design-construct-operate, and groundwater pump and treat systems to name a few. This wide range of services assists our clients with innovative, cost effective, and environmentally sound solutions to the full spectrum of environmental projects.

Laboratory Group

Heritage Laboratories is an environmental testing Laboratory, specializing in the analysis of environmental matrices for organic, inorganic, and radiological parameters. Since 1974, Heritage has provided analytical and sampling support to a broad range of industrial and commercial customers as well as federal, state, and local government concerned with compliance under a variety of environmental regulations. Heritage annually manages hundreds of projects, over 50,000 samples, and produces over 1.5 million analytical results. Heritage has the experience to effectively manage all sizes of projects,

from several hundred to several million dollars in scope.

Working in laboratory facilities specifically designed to assure safety, sample and process integrity, Heritage employees perform testing on a wide array of state of the art instrumentation which is calibrated and maintained to assure data quality. Successful participation in various certification and external performance audit programs provides validation of the success of Heritage's quality assurance program. Heritage routinely scores in excess of 95% on EPA Performance Evaluations ad has achieved the ASI Excellence Award five times as the highest rated lab in the country. From maintenance of chain of custody to proper waste disposition, Heritage's Standard Operating Procedures assure all samples will be handled and tested properly.

Service quality is achieved and maintained through an integrated process of project and sample management. Qualified field and project chemists, lab chemists and technicians, and data quality professionals combine their skills and experience to provide reliable data on a timely basis.

Heritage meets established due dates and offers rush service for virtually all capabilities, without sacrificing the clients data quality objectives. Heritage's computerized Laboratory Management System (LIMS) allows project chemists, analysts, and clients real time access to sample information and status and allows easy production of electronic reports in a variety of PC compatible formats.

Heritage's commitment to providing excellent service is also demonstrated by participation in the Heritage Plus Total Quality Management Process. Heritage Plus is an integrated, corporate-wide initiative designed to increase customer satisfaction and improve the quality of work life by continuously improving products, processes, and services. Partnership with the Heritage Environmental Services group of companies also adds to Heritage's base of experience and expertise.

Heritage Technology Group

Heritage R&D staff of 10 professionals develops new technologies for recovery, reuse, recycling and treatment of wastes. Heritage has received patents and has commercialized three metals recovery businesses.

Complementing Heritage's abilities in chemical analysis is the Heritage Research Group's capabilities in physical testing. The Research Group performs oil reclamation, product recovery, physical testing services, and waste treatment research to other Heritage Group companies. Heritage has received official permitting as a certified treatability laboratory per the USEPA. Heritage performs hazardous waste treatability studies, waste solidification and filtration trials, waste water pilot plant studies and treatability assessments. It is also one of the largest asphalt product development and highway material testing and research laboratories in Indiana.

Transport Group

Heritage Transport was purchased by Heritage Environmental Services, LLC in 1983 to provide hazardous waste transportation services to Heritage treatment and disposal facilities, and other EPA approved facilities. Heritage Transport, Inc. has ICC authority in the lower 48 states and state hazardous waste transport licensing in most states. Truck terminals are located in Indiana, North Carolina, Illinois, and Missouri.

The fleet includes coded tank trailers, sludge box transport trailers, dump trailers, and van trailers for drum transport. Most of the tankers are equipped with vacuum loading systems for efficient loading of industrial wastes. Heritage has specialized tankers which can handle very corrosive materials and portable storage tanks for temporary or long-term storage. Heritage sludge boxes, both open top and closed top, have sealed doors and tail gates so that the potential for leakage is eliminated. We also manage an extensive rail fleet of tank cars and solids handling cars.

Heritage Transport provides a nationwide drummed waste pickup service, and a crankcase oil pickup service through a subsidiary called Petroleum Management. A parts washer solvent pickup service called Crystal Clean uses an innovative approach to recycling and reusing the parts washer fluid as a product.

Small Quantity Waste/
Container Management Services

Heritage has consolidated its operations that handle containerized waste into a business unit that focuses on the special needs of customers who ship less-than-truckload amounts of waste. Heritage Container Management Services has a number of special programs for smaller generators of containerized waste.

Premier Service is a streamlined method of quick approval, pickup and disposal of containerized waste. The waste is not sampled or analyzed before shipment, if an adequate amount of information is known about its origin and characteristics. Heritage representatives can guide you through the pre-approval process and schedule pickup within days of the request.

Because we operate a national transportation network, your waste can be picked up within days of the request. All waste is tested when it arrives at a Heritage Treatment Center to assure compliance with all regulations.

Damaged Goods Service removes and disposes of commercial products in original packaging that are off-specification, damaged or have exceeded their shelf life. Heritage uses only environmentally acceptable methods of recycling, treatment or disposal.

Heritage supplies all packaging, instructional materials, documentation, shipping labels and markings needed for proper shipment of the waste to our treatment centers. Formal reports summarizing your waste activity are also provided to assist in maintaining the necessary compliance records.

Lab Chemical Disposal Service is a systematic method for disposing of laboratory waste. Heritage personnel can inventory, pack, and transport the waste for treatment to our treatment centers, or customers can pack the chemicals themselves with instructions and materials provided by Heritage.

Heritage Container Management Services provides timely transportation and treatment of containerized waste nationwide with a special focus on your waste management needs by providing the necessary services with the preferred advantages.

The Service and The Advantages:

>Waste samples are not required before shipment, provided information is known about the waste's origin.

>Heritage representatives can guide you through the pre-approval paperwork and schedule pickup within days of your call.

>Heritage's nationwide transportation fleet can pickup your waste within days of the request. We can service all of your locations - nationwide.

>Waste is segregated into reuse, recycle, treatment, and disposal categories thereby minimizing your waste and disposal liabilities.

>Heritage can provide and prepare the paperwork needed for shipment.

>Reports summarizing waste activity are provided by Heritage for your recordkeeping needs. These activity reports provide the necessary documentation for EPA reporting.

>We will help keep you in compliance, and monitor your waste activity to ensure pickup within the required time period. Your environmental liabilities are consolidated with one company - Heritage. >

SERVICE AREAS AND EXPERIENCE

Heritage provides a wide range of environmental contracting, engineering, and consulting services to industry, government, and business with contaminated site or environmental compliance problems. Heritage has successfully completed thousands of projects from sampling drums to constructing large onsite treatment systems. Our extensive technical support staff is experienced in assisting Heritage clients with innovative, cost effective, and environmentally sound solutions to the full spectrum of environmental projects. Our remediation and engineering services include:

- Facility and Equipment Decontamination
- Contaminated Soil and Groundwater Treatment
- Mobile Sludge Dewatering, Stabilization, and Treatment
- Tank Management and Remediation
- Property Assessments and Audits
- Contaminated Site Investigations (Surface and Subsurface)
- Onsite Treatment System Design, Construction, and Operation
- RCRA Compliance Consulting
- Emergency Response
- Environmental Engineering Services
- Lab Pack Services
- In Situ Remediation Technologies
- Municipal/Industrial Line and System Cleaning and Inspection
- Routine Industrial Maintenance

The following sections highlight some of these services.

Emergency Response

Heritage has been providing 24-hour, 7-day a week emergency response services since 1976. Emergency crews and equipment are stationed at six (6) fully staffed locations: Chicago, Indianapolis, St. Louis, Toledo, Louisville and Cincinnati. From these operation centers Heritage has responded to environmental emergencies in 22 states. The attached map shows the response times in one hour increments when crews and equipment are mobilized through ground transportation. Heritage can also mobilize personnel in company owned aircraft to reduce response time.

In 1987, Heritage became one of six emergency spill response contractors in the United States to be approved for the Chemical Manufacturers Association "CHEMNET" Program. CHEMNET is a mutual aid group of more than 120 chemical manufacturers and for-hire contractors which provide technical and physical assistance at the scene of chemical accidents.

Heritage is one of the few cleanup contractors in the midwest that provides full service emergency response capabilities. In addition to providing personnel and specialized equipment, Heritage has the ability to provide waste transportation, analytical services, and emergency storage and disposal for wastes.

Heritage's response crews have undergone special training in handling dangerous situations and

hazardous chemicals. All personnel have received advanced training in tank entry, ambient air and confined space gas monitoring, personnel protection and material transfers.

Company instruction and training is supplemented by special schools and seminars such as the truck rollover school offered by Texas A&M University and courses provided by AAR - Pueblo, Colorado tank car rail school and University of Findlay Emergency Response Training Center.

Heritage offers response planning services through its "Planned Emergency Response Services Program" (PERS). Heritage affiliates will audit a company's emergency preparedness and will issue certification to provide evidence that agreements are in place with qualified hazardous waste cleanup contractors for regulatory agencies.

Through the PERS program, Heritage assists its clients in setting up contingency plans for spills and helping plant personnel provide adequate instruction to their employees prior to any emergency.

Some of the planning services offered by the PERS program are:

>Spill Prevention Training - Technical staff will inspect your plant for spill prevention and control features and/or train your crews to prevent spills.

>Personnel Safety Training - Heritage safety experts are available for PERS contracted safety training.

>Waste Management - Heritage will assess a facility's waste disposal requirements.

>Spill Plan Review/Rewrite - Emergency contingency plans are now being required by cities and counties in addition to Federal and State regulatory agencies.

>Response Drills - Heritage will conduct planned or unannounced emergency drills that simulate accidents.

>Supervisor Training - Your company's plant supervision can be specially selected by your management for training in response procedures. Training at your site minimizes your cost and provides plant orientation for Heritage personnel who visit as instructors.

The following listing provides a selected list of representative response actions.

Selected Emergency Response Experience

BASF Corporation
Cincinnati, OH
Responded to chemical plant explosion. Managed all site activities, removed and disposed of 3,000 drums, more than 100 damaged tanks and vessels, 5 miles of piping and 13,000 yds. of contaminated debris, performed area air monitoring, debris removal, hazardous and non-hazardous waste disposal, and decontamination of plant facilities.

Powell Duffryn Terminal
Savannah, GA
The terminal spill resulted in an explosion and fire involving sodium hydrosulfide, turpentine, phosphoric acid, and caustic. Heritage cleaned, demolished and removed seven aboveground tanks with a total capacity of five million gallons. Heritage cleaned over twelve million gallons of additional tankage and installed 2,000 feet of storm sewer. The project also involved the excavation, on-site incineration and backfilling of 30,000 cubic yards of contaminated soils. Heritage also treated and discharged sixteen million gallons of contaminated water and passivated a new stainless steel storage tank and pipeline.

USEPA/OPA Response
Flat Rock, MI
Heritage was contracted by the EPA to perform removal activities under the Oil Pollution Act (OPA) at an abandoned oil refinery. The work involved sampling and cleaning twelve aboveground Number 6 oil tanks. Heritage treated over 4,000 yards of sludge from the tanks, 12,000 yards of soils and 2.5 million gallons of contaminated water.

Macoupin Farm Services
Shipman, IL
4,000 gallon gasoline spill that drained into a pond. Recovered free product, removed contaminated soil and cleaned pond. Conducted post cleanup subsurface investigation.

Southern States Warehouse
Louisville, KY
Pesticide warehouse fire. Treated firewater recovered and recycled 20,000 lbs. of pesticides, removed and disposed of additional waste. Decontaminated facility.

U.S. Coast Guard
Kokomo, IN
USEPA hired Heritage under OPA to clean Number 6 oil out of seven tanks at an abandoned steel manufacturing facility. Heritage used its sludge extraction unit robot to remove the heavy bottoms from the tank.

Amoco Oil
Chicago, IL
Gasoline truck roll over on the expressway. Cold tapped tanker and transferred product. Removed contamination from roadway.

Confidential Client
Chicago, IL
Chemical plant explosion and fire. Contained, recovered and disposed of 750,000 gallons of chemical contaminated firewater runoff. Performed assessment, removed remaining hazardous chemicals and waste from site.

Confidential Client
Elgin, IL
Pipeline break. Recovered 500,000 gallons of crude oil which spilled onto ground and surface water and decontaminated nearby structures.

Drug Enforcement Administration
Various locations in the Midwest
Assisted Drug Enforcement Administration in raids on illegal drug labs. Containerized and removed all chemicals following arrests.

Confidential Client
Princeton, IN
Train derailed into building causing three large storage tanks of liquid nitrogen to rupture. Three thousand yards contaminated soil was excavated and disposed. Sixty thousand gallons of product and contaminated groundwater were recovered.

Confidential Client
Louisville, KY

Chemical Plant Explosion and Fire. Toluene tank exploded causing contamination of plant equipment and facilities. Heritage crews decontaminated the affected areas and removed contaminated soils.

Chemical Manufacturing Plant
Bridgeview, IL
Chemical Manufacturing Plant exploded causing solvents and resins to catch fire and contaminated the facility. Heritage removed contaminated scrap, decontaminated areas of the plant, contained and treated over 2 million gallons of contaminated water.

Facility and Equipment Decontamination

Heritage's remediation/engineering group performs a wide range of decontamination services at manufacturing plants, and oil and chemical manufacturing facilities. This service is also provided on an emergency basis to cleanup after fires and accidents. Heritage has decontaminated active facilities as well as those that have shut down.

The engineering group's real estate specialists have been providing valuable assistance to mortgage companies as well as property buyers and sellers in identifying environmental liabilities and specification/supervision of the necessary cleanup actions.

Heritage has completed hundreds of successful projects involving facilities contaminated with:

- PCBs
- Mercury
- Pesticides/Herbicides
- Cyanides
- Heavy Metals
- Dioxin
- Asbestos
- Toxic Compounds
- Lab chemicals

The areas that frequently require special attention are:

- Chemical process equipment and surrounding structures
- Ventilation systems and roof vent areas
- Storage tanks, chemical distribution lines and handling areas
- On-site waste storage or disposal areas

Heritage uses a number of techniques to assure that facilities are free from contamination including:

- Hydroblasting
- High efficiency particulate vacuums
- High pressure surfactant cleaning
- Solvent wash/wipe
- Chemical treatment/reaction
- Sand blasting
- Encapsulation/sealing
- Vacuum Trucks & "Supersuckers"

Selected facility decontamination experience is summarized in the following listing.

Selected Facility Decontamination Experience

Confidential Client
Decatur, IN
Performed PCB decontamination at a closed manufacturing facility as part of total plant cleanup. Removed USTs, cleaned plating tanks, pressure washed concrete floors and pits, sampled entire plant grounds and removed contaminated materials from site.

Confidential Client
East Alton, IL

Remediation of a metal scrap yard as a result of a leaking PCB transformer. Project required extensive sampling to delineate the extent of PCB contamination on a four acre site. Clean-up efforts included the decontaminated of several vehicles, heavy equipment, a road and two buildings and the removal of over 1,000 cubic yards of contaminated soil.

USEPA Region V and Liquid Dynamics Facility
Chicago, IL
Sampled, analyzed, removed and disposed of waste chemicals abandoned at a former waste processing facility and decontaminated building.

Confidential Client
Union City, IN
Removed and disposed of 200,000 gallons of municipal sludge contaminated with PCB from two storage tanks. Decontaminated tanks and 3,000 feet of piping.

Battery Companies
Vincennes, IN - Reading, PA
Decommissioned two battery manufacturing facilities contaminated with lead oxide and sulfuric acid residues.

Various decontamination and removal procedures were used including pressure washing, hand scrubbing, acid neutralization, demolition, and excavation of debris. All contaminated debris and rinseate were properly disposed of off-site. These projects required a total of seven months to complete.

Union Electric Company
Columbia Mo.
Heritage cleaned up coal tar contamination at this former manufacturing gas plant. Heritage excavated and demolished two tar holders and removed almost 20,000 cubic yards of contaminated soils. Over 250,000 gallons of water was also treated. Noise and dust control were managed using foam generators and perimeter site air monitoring.

Major Automotive Manufacturer
Richmond, IN
Total environmental cleanup of manufacturing facility including process equipment cleanup and decon, plant floor decon, removal of underground tanks, and contaminated soil cleanup.

Major Detergent Manufacturer
Chicago, IL
Working ahead of demolition crews, cleaned over 400 process tanks. Treated approximately 250,000 gallons of water for POTW discharge. Handled approximately 650,000 gallons of liquids for disposal.

Citizen's Gas
Indianapolis, IN
Heritage cleaned gas holders for reconstruction that had been involved in a structural failure and fire. The 225 foot diameter holder contained ten

million gallons of water with .5 million gallons of heavy sludge which had accumulated over 80 years. The 30,000 psi hydrolaser was used to cut the steel roof deck for reconstruction.

Illinois EPA/Kankakee Plating
Kankakee, IL
Decontaminated a plating facility that had been illegally discharging and storing waste. Heritage's pretreated much of the waste on-site. This included on-site destruction of cyanide, chrome reduction, and neutralization of corrosive waste. After all pumpable waste was removed, Heritage crews decontaminated the building, the plating system and all equipment using neutralization solutions and high-pressure washing.

Food Processing Plant
Milwaukee, WI

Elemental mercury contaminated the process tanks and piping of a food processing plant. Heritage sampled the entire facility and decontaminated all process units to meet FDA requirements. Two process tanks were decontaminated and dismantled for disposal.

ATR Wire
Danville, KY
Heritage was contracted by a wire manufacturer to perform site investigation and remediation activities in their 14,000 sq. ft. plating operation. The completed tasks included determination of subsurface contamination, development of a safe approach to decontamination and destruction of cyanide on structures and equipment removal of structures and equipment containing any hazardous residues, and selective excavation and disposal of contaminated subsoils. All work was performed inside the plant and completion was required within a three week "window". Heritage successfully completed this project in 18 days within budget to the satisfaction of the client.

Waste Site Cleanup

Each year Heritage performs more than 100 planned major remedial waste site cleanups. Most of these involve soil removal and off-site disposal. However, when soils or other waste products can be alternatively treated and/or rendered non-hazardous, Heritage will determine the economic/regulatory benefits of innovative approaches and perform the field service work to accomplish them.

Heritage's projects cover a broad range and unlike many companies, Heritage will not neglect its clients needs on small projects. Some of Heritage's remedial projects result in only a few drums of waste. However, on the other end of the spectrum, we have excavated and treated more than 40,000 yards of contaminated materials, on one project alone.

Frequently projects require precision in removing small, well defined contaminated areas, or working near buildings, underground utilities, or structures. Heritage's engineers and field crew carefully plan their approach to difficult clearance problems so that productivity and safety are never compromised.

Heritage provides a wide range of services to remediate contaminated sites. Some of these services can include:

> Drum, tank and lagoon sampling and analyses
> On-site waste treatment
> Contaminated soil excavation and disposal
> Decontamination of production areas
> Waste transportation and disposal services
> Soil vacuum extraction
> Soil and groundwater sampling and analyses
> Sludge removal and on-site dewatering
> Cleanout and removal of tanks
> Transportation and disposal services
> Verification sampling and analysis
> Biotreatment of soils and groundwater
> Chlorinated solvent bioremediation

Heritage manages its waste site cleanups through:

> Thorough pre-excavation sampling to determine the horizontal and vertical extent of the soil removal
> Environmental controls at soil staging areas to prevent contamination migration
> Equipment decontamination procedures
> Dust control
> Water run-off and run-on controls
> Security fencing and warning barriers
> Air monitoring (where appropriate)
> Traffic control
> Detailed daily record keeping
> Project health and safety planning
> Project management planning
> Project QA/QC planning
> On-site waste volume/weight measurement
>Pre-permitting and project disposal coordination

Selected waste site cleanup experience is provided in the following listing.

Selected Waste Site Clean-up Experience

USEPA-Region V Berlin and Farro Site
Flint, MI
Excavated 4,000 buried drums, at a Superfund site. Provided sampling, analysis and disposal of drums from site.

U.S. Drum Site/Illinois EPA
Chicago, IL
Sampled, analyzed and disposed of 4,800 abandoned surface and buried drums containing flammables, PCBs, reactives, corrosives and lab packs. Excavated, identified and disposed of 3,000 yards of contaminated soils and buried drums.

Confidential Client
Joliet, IL
Removed and disposed of farm chemicals and building after a farm co-op warehouse fire. Biological treatment of contaminated soils on-site.

Confidential Client
Fulton County, IL
Performed characterization and site investigation of soil and buried drums at a former pesticide formulation and distribution facility.

Confidential Client
Indianapolis, IN
Provided excavation, loading, and transportation for over 11,000 tons of PCB contaminated soils. Entire project was completed in 10 days.

Confidential Client
Tell City, IN
Heritage was contracted by a large manufacturer to excavate and dispose of 9,000 CY of special waste from a

former landfill. Heritage averaged over 60 truckloads per day of material removed and completed project activities in less than two weeks.

Selected Superfund Site Projects

Heritage Major Projects Group oversees the bidding, project management and on-site remedy construction at major Superfund site projects. These projects involve a variety of construction methods with heightened Federal, State and consultant oversight. Remedy's include:

>Waste stabilization using portable pug mills
>On-site landfill cell construction
>Landfill multimedia caps
>Slurry wall cutoff trenches
>Groundwater and leachate collection trenches
>Lagoon or lake dewatering and sediment/sludge removal
>Permanent groundwater/leachate treatment systems and buildings
>Temporary water treatment facilities

>Routine ambient and industrial hygiene air monitoring

Examples of Heritage Superfund site projects include:

62nd Street Landfill PRP Group
Tampa, FL
Soil and groundwater at the 62nd Street Site was contaminated with lead and cadmium. A slurry wall was installed around the site as well as a sludge dewatering system to allow the site to be excavated. Heritage was contracted to remove most of the buried debris, sort and size it to one inch or smaller, and process the material through a stabilization system to achieve lead, cadmium, density and permeability standards. 75,000 tons of material were removed and processed. An unknown amount of steel and metal was set aside, decontaminated, and taken off-site for recycling. To achieve the metal stabilization and permeability standards, it was necessary to add fixation agents at a 40% by weight ratio.

Barnwell County Landfill PRP Group
Barnwell, South Carolina
Heritage was contracted to remove 2,050 drums of hazardous and non-hazardous materials at the Barnwell County landfill. A 30' x 30' concrete pad was constructed for drum processing. Heritage completed the job 2 weeks early and on budget.

Flowood PRP Group
Flowood, MS
Two industrial manufacturing facilities in Flowood became contaminated with lead from a ceramic manufacturer. Approximately 52,000 cubic yards of contaminated material was treated and landfilled on site. A truck and equipment decon pad was installed so that all traffic in and out of the site could be decontaminated prior to leaving the site. Monitoring wells were installed and a fence was constructed around the perimeter. The landfill covered an area of 1.5 acres and, when completed, it held approximately 60,000 cubic yards of stabilized sludge. The landfill was covered with a 2 foot thick, 10^{-8} permeable clay cap.

Wauconda Site
Wauconda, IL
Heritage was contracted to perform a landfill closure at an NPL site. This involved the installation of 2,800 feet of

leachate collection system and a leachate forcemain system, complete with cleanout chambers, pumps, a removal control pumping system, and the installation of a 1,800 foot soil/bentonite cutoff wall. A cap was placed over the landfill consisting of approximately 97,000 cubic yards of general fill, clay, and topsoil and the construction and installation of 240,000 square feet of gabion baskets. Swales were constructed around the entire site and lined with erosion control matting and approximately 240,000 square feet of gabion baskets to facilitate drainage off-site. New gas vents were fabricated and installed in the cap.

Forest Waste Site
Otisville, MI

A total of 3,167 drums were excavated, cataloged, sampled, Hazardous categorized, overpacked, bar-coded, and staged. Visually clean and dirty soils were separated during the excavation with the "clean" soils being replaced in the completed excavation at the direction of the engineer. "Dirty" soil was staged in piles adjacent to each excavation. The piles were then sampled, cataloged, HAZCAT'd and then covered with polyethylene sheeting to control migration. A windows based data base application was developed to categorize each sample and provide a range of reports. Once the 16 composite groups were established, portions of each group were analyzed at Heritage Laboratories for disposal purposes. The loadout phase utilized, a bar-coding inventory step whereby the drums were scanned and linked to a manifest number for every load. A load packing list was produced in the field and the truck driver then provided the list to the engineer in order to complete the manifest. This system allowed Heritage to know exactly how many drums of each composite group remained on-site at any time during the loadout.

Coshocton Landfill
Coshocton, OH
This landfill project involved the relocation of approximately 17,000 cyds of industrial waste, the search and recovery of unknown drums, placement of 91,000 cyds of low permeability clay and 75,000 cyds of general fill and topsoil. The waste from around the thirty acre site was placed into the areas of the landfill designated for capping. Seventy-six drums of unknown contents were uncovered, secured, and prepared for sampling and disposal. Over 75,000 cyds of general fill and topsoil were brought in and placed on the landfill to finish the cap design.

Allied Signal
Vincennes, IN
Heritage performed decontamination and remediation activities at the site. Heritage cleaned 500,000 square feet of the main operations building, which was contaminated with lead dust, removed 5,000 feet of lead contaminated sewer lines, and excavated and stabilized 13,000 cubic yards of soil. In addition, Heritage decontaminated an on-site lagoon, the main building roof, petroleum contaminated soil, and numerous residential properties containing lead contamination. EPA and IDEM were on site to monitor daily activities.

NPL Site
Duluth, MN
Heritage performed a variety of environmental remediation activity which required a three tracked schedule that was implemented to allow three groups of tasks to be underway at all times, before winter set in. Work

included removal of 450 buried drums from 10 sites, placement of a 13,000 cy clay cap, and solidification of 600 cy of PAH sludge. Two gasholders were demolished, a large sewer was lined and 50,000 gallons of water was treated and discharged.

Tri-State Plating/USEPA Region V
Columbus, IN
Heritage performed an expedited response action for an abandoned hazardous waste site. Heritage decontaminated masonry, steel, and other above ground structures; removed asbestos ceiling tiles; demolished and removed a former metal plating building; drilled over 400 ft. of soil borings; shored, braced and excavated over 3000 cubic yards of contaminated concrete and soil for offsite disposal; and, backfilled, compacted, graded and seeded the 22 foot deep excavation; provided extensive air monitoring for crew and area residences.

Chemical Recyclers, Inc. (PRP Group)
Wylie, TX
A CERCLA action was initiated at an abandoned solvent reclamation facility in Wylie, TX. Heritage was hired by the potentially responsible parties to sample, analyze, and dispose of approximately 1,200 drums and 35 tanks of various unknown solvents. All the storage tanks and various pieces of process equipment were decontaminated and disposed of off-site.

Camor Site (PRP Group)
Westville, IN
Heritage was contracted to stabilize approximately 40,000 yds. of contaminated sludge at a waste oil refinery lagoon. This sludge was removed from the lagoon, stabilized with solidification media, the metal contamination fixed, and the material placed back into the lagoon. Once all material was fixed and stabilized, a clay cap was constructed to seal the impoundment. During this sludge handling, Heritage also set up a temporary liquid treatment system consisting of chemical coagulation, a clarifier, sand filters, and carbon filters. Over 1,000,000 gallons of organic and metal contaminated runoff, tank water and groundwater were treated and discharged.

TRW
Piqua, OH
Heritage demolished and removed a portion of a factory building containing metal plating and waste storage facilities. The majority of the debris was decontaminated, removed for off-site disposal and the area backfilled and graded. Additionally, a 1200' long by 20' deep groundwater interceptor trench was excavated so that collection piping and sumps could be installed. This trench was used to collect solvent contaminated groundwater before it migrated off-site and pump it to a water treatment system constructed onsite. This project was performed amid new utility and road construction taking place virtually side-by-side.

Tank Management and Remediation

Above Ground Storage Tanks

Heritage's tank expertise stems from two sources. It owns and operates six facilities that have more than 100 tanks and vessels in their systems. And, it services and cleans more than 1,000 above ground tanks a year for its customers.

While its expertise is primarily in the safe handling and disposal of waste and in the proper cleaning of tank systems, Heritage also performs related maintenance on valves, lines and pumps, floating roofs, and vents.

The principle techniques that Heritage uses to perform its tank decontaminations are hydroblasting, medium pressure washing, sand blasting, and hydraulic sludge pumping. This cleaning equipment is typically used in conjunction with vacuum trucks or supersuckers.

The added expertise of its on-site waste treatment places Heritage far above the ordinary tank service company. Heritage has a full assortment of mobile filtration and treatment equipment to reduce waste disposal costs.

Underground Storage Tanks

Heritage's interrelated group of environmental programs is best illustrated by its underground tank assessment and remediation services. Its comprehensive list of services include:

> Risk evaluation and identification
> Regulatory compliance status review
> Tank cleaning and removal
> Compliance programs for new tank installations
> Tank and line integrity testing
> Subsurface contamination assessment
> Groundwater contamination treatment
> Treatment system design and operation
>Tank and contamination removal and disposal
>Remedial response services for leaking tanks
>Regulatory approval of remediation
> Site monitoring

Heritage has successfully performed several hundred underground tank remediation projects. Oil companies, utilities, and manufacturing facilities rely on Heritage to act swiftly when remediation is needed. Vast experience in this area enables Heritage to complete each phase of a project in rapid order.

Heritage is an approved and licensed UST contractor in all midwestern states. Heritage is on contract with several state environmental agencies to provide emergency LUST removal services.

A sampling of our tank management experience is listed in the following listing.

Selected Tank Management Experience

Major Automotive Manufacturer
Dayton, OH
Removal of 68 underground storage tanks and contaminated soil. Performed hydrogeological site investigation and drilling to determine extent of contamination. Restored tank cavities to original condition.

Illinois EPA
Lisbon, IL
Excavated, cleaned and disposed of 6 underground gasoline tanks and 2,250 yards of contaminated soil.

Mobil Oil Company
Multi-State Area
Multi-state underground gasoline tank removals and contamination remediation.

Major Fast Foods Chain
Chicago, IL
Removed leaking underground tank that had contaminated a storm sewer and retention pond. Installed recovery wells. Carbon treated contaminated water on-site.

Confidential Client
Danville, KY
Removed leaking underground tanks and 500 cu.yds. of contaminated soil from unsaturated zone clay soils. Completed initial hydrogeologic characterization.

Retail Grocery Warehouse
Memphis, TN
Removal of two leaking fiberglass underground storage tanks and diesel fuel contaminated soils. Performed environmental assessment plan and completed remediation.

Confidential Client
Richmond, IN

Removed multiple underground solvent and fuel oil tanks at large manufacturing facility. Performed subsurface investigations around tanks. Designed and constructed new above ground tank farm. Installed and operated an *in-situ* bioremediation system that cleaned up residual contamination in 14 months.

CSX Railroad Various Sites
Eastern United States
Cleaned, removed and samples over 100 USTs in 45 sites throughout the eastern United States. This project was completed in a timely manner by utilizing four crews from four Heritage divisions.

Harcross Chemical
Indianapolis, IN
Heritage removed residual solvents from 12 above ground compartmentalized tanks. These tanks were then cleaned utilizing high pressure washers. The tank washings were treated and neutralized.

Wisconsin Bell
Wisconsin Various sites
Removed underground tanks at 20 sites. Contaminated soil removal and disposal.

Environmental Engineering and Consulting
Site Assessment

Over the past sixteen years, Heritage has conducted an impressive number of soil and groundwater contamination assessments.

Since Heritage operates a number of its own waste treatment and disposal facilities, the critical importance of obtaining representative data regarding site conditions is understood. The Heritage technical staff determines what data is significant, knows when it is important to obtain more information, and recognizes when additional data is not necessary, or is potentially confusing.

This perspective helps avoid the expenditure of time and money for needless data accumulation and serves to focus regulatory attention on important real issues.

The site assessment services that are provided by Heritage include:

> Sampling and analysis plan design
> Soil boring classification and sampling
> Soil and contaminant analysis
> Monitoring well design and installation
> Groundwater monitoring
> Groundwater flow and mass transport monitoring
> Groundwater risk assessment
> Risk Based Corrective Action
> Fate and transport analysis
> Design and installation of product recovery systems
> Design, installation and operation of groundwater recovery and treatment systems
> Design and installation of interceptor trenches
> Design and installation of cutoff walls
> Design and installation of hydraulic controls
> Design, installation and operation of *in-situ* bioremediation, air sparging or SVE systems.

Environmental Auditing and Assessment Services

Environmental/Regulatory Audits

Manufacturers, commercial establishments, and local governmental entities are faced with a myriad of regulatory requirements. Heritage's environmental/regulatory audits serve as a useful mechanism to evaluate the client's facility for compliance with these applicable regulatory requirements. In addition, Heritage's auditors can identify process improvements or procedural modifications which would both improve compliance and potentially create economic benefits for the site. Audit goals are to assist the client in achieving and maintaining compliance with Federal, State and local regulatory requirements.

A typical Heritage environmental audit will include the following activities:

>Inspect plant environmental/ regulatory files to determine the status of compliance with all applicable requirements, especially plans, monitoring reports, permits, etc.
>Inspect plant processes including raw material storage and handling, individual unit processes and wastestreams, pollution control, waste treatment and chemical inventory.
>Discuss operations with plant personnel.
>Review preliminary findings with plant staff.
>Review and interpret Federal, State and local requirements applicable to the plant site.
>Prepare an audit report that consists of a detailed listing of the facility's compliance status, with recommendations for corrective and follow-up actions.

Typical areas assessed in an audit are as follows:

>An assessment of hazardous waste labeling, manifesting and recordkeeping practices
>Evaluation of facility's waste segregation and minimization program to improve overall waste management and reduce off-site disposal costs.

> Evaluation of underground raw material or waste storage tanks, together with other raw material and chemical storage facilities.

> Evaluation of spill control plans, facilities and procedures
> Evaluate air permit status.
> Evaluate wastewater treatment system compliance.
> Evaluation of the potential for PCBs inside electrical, hydraulic or other process equipment
> An assessment of facility's overall emergency response capabilities with respect to chemical releases.
> A review of documentation pertaining to on-site and off-site waste disposal operations and contractors.
> Suggest pollution control procedures and waste minimization practices to aid in compliance with regulatory requirements.
> Evaluation of regulatory requirements and potential liabilities which may be associated with the expansion of existing facilities, or acquisition of new sites.

Environmental Site Assessments

The transfer of industrial properties presents unique and potentially large risks to sellers, buyers, lenders, or title insurers. The primary concern is that use, storage, or disposal of hazardous substances has contaminated plant facilities, soil or groundwater resources. Statutory and common law liabilities and complex regulatory requirements are applicable in instances of contaminated property. Heritage can assist you in performing environmental evaluations of real estate transactions.

Pre-Purchase Audits

The risks, costs, and liabilities associated with industrial property transfers can be managed through the intelligent use of property transfer assessments. Such assessments are site-specific evaluations of a variety of aspects of a particular property, including physical assets (buildings, manufacturing processes, chemical and waste storage or disposal areas). The extent of the audit will vary, depending on the needs of the client. Assessments can be performed in conjunction with legal counsel, if confidentiality is desired.

The amount of information necessary will vary. A phased approach is recommended, so as to allow assessment activities and cost expenditures to cease when sufficient information has been gathered to allow a decision.

Heritage is experienced in conducting environmental and property transfer assessments. Heritage's team of engineers, geologists, and environmental scientists have the expertise and experience necessary to provide support services to industrial property transactions. Assessments have been performed for a variety of clients, including buyers, sellers, lawyers, banks and real estate agencies. If remedial action is deemed necessary as a result of audit findings, Heritage can perform appropriate site remediation in a cost effective manner.

A typical assessment would include the following activities:

>An assessment of past and present chemical handling and waste disposal practices;
>An inspection of the property, including buildings and manufacturing processes, in order to identify the presence of potentially harmful materials, and to identify areas of obvious environmental impact;

>A review of environmental compliance files to assess compliance status and determine the existence of past and current enforcement actions;

>An assessment of pathways of migration (air, surface water, groundwater), as well as potentially exposed populations; and

>A title search, as appropriate, to assess the potential for contamination from prior property uses.

Heritage's professional staff have performed environmental audits and assessments for a wide range of clients in varied industrial settings. Assessments are done to exceed the requirements of ASTM standards. Summaries of a few of the major audits and assessments performed by Heritage are presented in the following pages.

Risk Assessments

Hydrogeological Services

The Hydrogeological Services Group at Heritage performs a variety of diverse investigations, assessments and designs for site evaluations and on and off site remediation plan development.

The engineers and geologists at Heritage are experienced at providing clients with complete, accurate, and relevant information on a timely and efficient basis. The type of data generated by site assessments, hydrogeologic and ground-water investigations is critical to meeting the client's environmental compliance needs, implementation of risk-based assessments, and design of remediation efforts. Heritage is experienced at working with corporate personnel and legal counsel to define and address long-term liabilities associated with facilities undergoing closures or corrective actions. We also assist clients in determining appropriate technical and administrative based clean-up levels. Heritage is efficient at providing these services, since we combine the skills of regulatory compliance consultants with hydrogeological staff, process design engineers and field operations personnel.

Hydrogeological services offered at Heritage include:

General Services

>Subsurface Borings and Sample Analysis
>Monitoring and Recovery Well Installation
>Hydrogeologic Assessments
>Geologic Mapping
>Real Estate Assessments
>Expert Witness Testimony
>Groundwater Modeling

Ground-water Contamination Services

>Contaminated site investigation
>Vertical aquifer profiling
>Ground-Water monitoring and sampling
>Onsite analyses
>Landfill monitoring networks
>Geophysical surveys
>RCRA-CERCLA Ground-water Monitoring (detection and compliance)
>Statistical interpretation of chemical data
>Risk Assessments

> Ground-water flow and contaminate transport computer modeling (analytical and numerical models)
> RCRA Permitting, if needed
> Remedial Investigations/Feasibility Studies
> Design and Installation of Ground- water Recovery Wells/Systems
> Design and Installation of Interceptor Trenches
> Design and Installation of Slurry Walls
> Design and Installation of Soil Vapor Extraction Systems
> RBCA Evaluations
> *In-situ* bioremediation (of chlorinated and TPH compounds)
> *In-situ* air sparging

Ground-Water Protection And Supply Services

> Land use studies and environmental audits
> Geologic Mapping of Critical Aquifer Areas
> Pump tests and analyses

> Comprehensive Aquifer Management Plans
> Wellhead Protection Areas

The Hydrogeological Services Group works closely with the Regulatory Services and Onsite Treatment Groups for enforcement, *in situ*, and ground-water remediation projects.

Some experience summaries of our Environmental Engineering projects are provided in the following listing.

Site Assessment Experience

Confidential Client
Indianapolis, IN
Preparation of closure plan for a RCRA surface impoundment containing 100,000 tons of sludge contaminated with metals and chlorinated solvents. Performed several treatability studies in order to determine the most economical technology for the implementation of the closure plan. Assisted in negotiations between client and state agency.

Major Manufacturer
Chicago, IL
Underground tank leak. Performed site investigation, designed, installed and operated a gasoline recovery system at a service station.

Confidential Client
Chicago, IL
Underground tank leak. Site investigation, designed, installed and operated a gasoline recovery system and groundwater recovery and treatment vapor sensing devises at a car maintenance facility.

Illinois EPA
Chicago, IL
Underground tank leak. Site investigation, installed and operated a gasoline recovery system. Installed a gas venting system in a nearby building.

Major Manufacturer
Chicago, IL
Assess leakage/spillage from underground waste tanks and drum storage area. Provide cluster wells, soil gas testing, and groundwater modeling in satisfying IEPA RI/FS requirements.

Confidential Client
Herbert, IL
Chromium electroplater. Provided manufacturing process audit, and studies to identify source, extent, and magnitude of hexavalent chromium contamination in soils and groundwater. Designed groundwater recovery system and provided negotiations with regulators.

Motor Freight Co.
Chicago, IL
Underground tank leak. Provided assessment of ethylene glycol release in subsurface at truck terminal facility. Provided characterization and interface with regulatory agency.

Rockwell International
Carpentersville, IL

Heritage had initially been hired to clean and remove two 10,000 gallon underground storage tanks containing waste oil and coolant. Upon sampling the tanks, it was determined that these tanks also contained waste perchloroethylene and that they had leaked. Heritage was asked to perform a site assessment to plot the contamination plume. Monitoring wells were installed, additional soil borings taken and a soil gas survey performed in order to determine the extent and plume of contamination. After the initial remedial investigation was performed, Heritage performed the feasibility study.

Selected Environmental Auditing and Environmental Assessment Experience

Stant, Inc.
Pine Bluff, AR; Connersville, IN; Waltham, MA
Multi-facility audit for an automotive parts manufacturer with plating, press, paint, and assembly processes. This audit included evaluation of the client's compliance with applicable regulatory requirements including the following: Underground petroleum and hazardous substance storage tanks (UST), Emergency Planning and Community Right to Know Act (EPCRA), Title III of the Superfund Amendments and Reauthorization Act (SARA), Land Disposal Restrictions, Clean Water Act (CWA), and CERCLA/Superfund.

Sun Chemical
Kankakee, IL; Frankfort, KY; Chicago, IL
Environmental Audit for a printing operation during which Heritage addressed issues such as permitting needs for pollution discharge into storm sewer, hazardous waste determinations, chemical and waste storage procedures, aboveground storage tank spill control, asbestos containing materials, emergency planning, OSHA Hazard Communication standards, EPCRA compliance, PCB regulation compliance.

Confidential Client
Michigan
Environmental Audit for a manufacturer of steel automotive parts which covered the compliance and management issues mentioned above as well as potential liabilities and contamination problems from two adjoining properties, one of which was listed on the CERCLA National Priorities List (NPL).

Western Tar
Terre Haute, IN
Environmental audit for a wood preserving and coal tar refining facility. In addition to regulatory compliance in regard to RCRA, CWA, CERCLA, EPCRA, and OSHA Hazard Communication, Heritage addressed the environmental and regulatory ramifications of a waste collection lagoon and recommended options for closure of the lagoon.

RCA
Indianapolis, IN
Heritage performed a plant exit audit and developed a list of decontamination and sampling activities to be conducted in conjunction with the closing and sale of a large electronics manufacturing facility in Indiana. Heritage's involvement coordination of the clean-up activities with the contractor, supervision of plating area decontamination, sample collection and data review, and report preparation.

Subaru - Isuzu
Lafayette, IN
Evaluated a "clean" manufacturing facility in Indiana for a foreign buyer. Heritage developed a list of twelve site decontamination items and performed sampling to verify that the site was "clean".

Union City Body
Union City, IN

Heritage evaluated a manufacturing plant site, with a known PCB contamination problem for a potential buyer. Due to the widespread nature of the contamination, the presence of buried drums on-site, a leaking underground tank and possible creek sediment and groundwater contamination, Heritage's list of environmental liabilities convinced the buyer to pursue other alternatives.

Micrometal
Indianapolis, IN
Heritage evaluated a metal fabrication facility for a bank representing a potential buyer. The facility inspection, site sampling and rush lab turnaround were performed with the final report issued within 72 hours of authorization. The assessment identified improper removal of an old tank, tank management recommendations, environmental compliance deficiencies by an on-site subcontractor, improper empty drum handling procedures and minor leakage areas. The problems identified were not significant enough to affect the transaction.

Bremen Glass
Bremen, IN
Pre-purchase evaluation of waste handling practices and regulatory agency files indicated high potential for soil and groundwater contamination. Cost estimates prepared for Phase II investigation including groundwater monitoring wells and removal of chemically-saturated soils. Reluctance of owner to finance site remediation resulted in termination of negotiations.

Broderick Co.
Muncie, IN/Kenton, OH
Evaluated steel forging plant in Indiana for purchase by a group of investors.
Contaminated soil removal recommended. Significant regulatory issues identified and ranked. Suggested action items provided.

Mayflower Moving and Storage
Indiana; Illinois; Virginia; Michigan
Lender required assessments of six company-owned facilities in Indiana, Illinois, Virginia, and Michigan.

Significant issues were identified and ranked. Suggested action items provided.

Confidential Client
Indiana
Heritage performed a real estate assessment to evaluate a steel stamping plant in Indiana. Site sampling did not identify any significant problems other than numerous areas of oily waste contamination on site. Heritage developed remedial cost estimates for these areas. Heritage also addressed

OSHA compliance problems with a history of serious injuries and made recommendations to address these concerns.

Brulin & Co.
Indianapolis, IN
Central Indiana facility was evaluated on behalf of lender. Regulatory agency file review indicated that the facility had been placed on the CERCLIS List, and that the Agency had performed a Preliminary Assessment, both without the owner's knowledge. Significant issues were identified and ranked, and relative risks assessed for the lender.

Confidential Foundry
Terre Haute, IN
Performed site visit and evaluation of site assessment report of another consultant on behalf of property owner's attorney. Identified major flaws in scope, methodology, and conclusions. Prepared alternative scope of work to obtain necessary information.

Confidential Steel Co.
Chicago, IL
Heritage performed pre-purchase inspections of two industrial properties located in Chicago. A sampling program was developed and implemented for one facility - a former scrap metal operation. Heritage prepared a report of the inspection findings for use by a developer in decision-making with respect to acquisition and development of the properties.

Langsdale Metals
Indianapolis, IN
As part of a bank refinancing, Heritage evaluated past operations and found low level PCB contamination. Heritage outlined cleanup actions necessary, the costs of which were borne by the local utility, the owners of the decommissioned transformers. Heritage performed sampling to verify that the site was "decontaminated".

City of Indianapolis
Indianapolis, IN
A municipality condemned a former plating plant operation as part of a downtown development project. Subsequently, hazardous wastes were found on site by the State. Heritage evaluated the facility, sampled drums, chemicals and residues in tanks, and installed several groundwater monitoring wells. A sampling and analysis plan and a voluntary site clean up plan were submitted to the state for approval. Heritage subsequently removed 48 drums and 7 rolloff loads of waste and decontaminated the building. After demolition by a city contractor, Heritage sampled and removed contaminated soils underlying the building slab and received state approval for the redevelopment project to proceed.

Confidential Client
Chicago, IL
Heritage's Chicago office is completing the final phase of a three phase investigation to evaluate the suitability of a former municipal waste incinerator for a proposed $50 million residential development. A preliminary site suitability determination, based on evaluation of initial hydrogeological information, included Phase I and Phase II soil borings, and hazardous waste determinations. This program was carried out in close cooperation with both the developer and the municipality. Subsequent project phases involved comprehensive groundwater investigations. The study

has allowed the development project to proceed to the satisfaction of the concerned parties.

Selected Hydrogeological Services Experience

Rockwell International
Illinois
A TCE tank release resulted in regulatory agency enforcement action. Heritage performed a remedial investigation involving a soil gas survey, numerous soil borings, 12 monitoring wells, surface water sampling, residential air monitoring, an Endangerment Assessment, and ground-water modeling. A Feasibility Study was performed and approved by the Illinois EPA. Proposed Remedial Actions involve soil venting and ground-water pump and treat.

Confidential Client
Tennessee

An acid etching facility released chromium and nickel containing nitric and hydrofluoric acids resulting in soil and ground-water contamination. Subsequent investigation included a Ground-water Quality Assessment Plan and unique investigatory techniques in the folded/faulted karst region and included aerial photograph interpretation, radiometric survey, microgravity survey and fracture/structural trend analysis.

Chemical Manufacturer
Lodi, NJ
Past waste handling at a specialty materials manufacturer resulted in extensive contamination of a five acre site in New Jersey. Heritage performed an ECRA Remediation of a shallow aquifer with free floating PCB's and DNAPLS at the base of the aquifer. Remediation also included dissolved phase VOC remediation in a shallow and a deep aquifer. The remediation system used pump and treat technologies, with a chemical feed, packed tower air stripping, off-gas incineration, and carbon polishing.

Confidential Client
Indiana
Heritage performed an investigation of a thick sand and gravel aquifer underlying a facility that was being sued by the USEPA as a PRP to contamination of a sole-source aquifer and a city's wellfield. The contamination included chlorinated volatile organic compounds. Heritage's investigation included use of vertical aquifer profiling techniques by using "slotted" hollow stem auger drilling and water sampling followed by immediate on-site analysis for VOC's using a portable gas chromatograph. The technique provided the client with real-time data necessary to make informed decisions without installation of permanent monitoring wells.

Confidential
Indiana
Heritage was involved with environmental compliance at a flexible packaging facility for over ten years. Corrective actions and investigations at the facility have involved removal of leaking hydrocarbon UST's and ground-water monitoring including off-site residential wells; closure of a RCRA interim status surface impoundment containing caustics and ink sludge and ground-water monitoring; and remediation and ground-water monitoring at a SWMU containing waste inks and pigments.

Warsaw Chemical
Warsaw, IN
The discovery of volatile organic compounds as a part of a municipal sewer installation project prompted a chemical manufacturing and repacking facility to contract Heritage to perform a hydrogeologic assessment. Heritage's investigation has included installation of numerous soil borings, vertical aquifer profiling with on-site gas chromatograph analysis for volatile organic compounds, installation of 22 monitoring wells, geophysical logging of deep wells, sampling of off-site residential wells and implementation of a ground-water recovery and treatment project. The system presently recovers dissolved phase and free-floating non-chlorinated solvents. Remedial efforts are being reviewed by the USEPA.

Allison Gas Turbine
Indianapolis, IN

A RCRA closure plan for a 7 acre surface impoundment containing F-listed sludges was developed by Heritage. The unique administrative, legal, regulatory, and geologic issues and constraints associated with the project involved a plan that includes: construction of a intragradient cutoff (slurry) wall, installation of dewatering wells to allow for sludge removals, solidification and compaction and disposal in an in-situ constructed RCRA minimum technology cell. A RCRA multi-layer cap and leachate collection system was also designed. Ground-water monitoring will include performance monitoring to ensure ground-water control by the slurry wall/dewatering wells.

Asphalt Materials
Iowa
A pre-purchase investigation of an asphalt plant discovered that the property had formerly been utilized for a creosote based wood treating operation. Heritage activities included review of historical aerial photographs and installation of numerous soil borings and monitoring wells. Heritage's investigation revealed several areas where sediments and ground-water were contaminated by organic compounds. Heritage's efforts include development of strategies which will allow transfer of certain portions of the property. Heritage has performed treatability studies for aerobic degradation of coal-tar products identified on certain portions of the property to allow for negotiation of purchase costs and terms.

Confidential Client
Ohio; Michigan
Heritage was awarded a contract with a major oil company to perform site assessments and implement underground storage tank management plans at numerous retail facilities. Investigations utilize various investigatory methods to evaluate subsurface and hydrogeologic conditions, regulatory compliance and risk scenarios for each site.

Confidential Client
Illinois
Heritage was retained by a manufacturer to conduct an investigation of site conditions at a 15 acre facility in preparation for transfer of the property. In the course of this investigation Heritage installed eight monitoring wells and conducted 16 soil borings at the site. Heritage defined the nature and extent of solvent, petroleum hydrocarbon, and heavy metals in soil and ground water. The site also was impacted by a river which abutted the property, with resulting

bank storage affecting the ground-water flow. Heritage conducted river and sediment studies as part of its overall evaluation of this site. Heritage has recommended several plans of action to mitigate environmental impact. Actions include containment, excavation and disposal, *in situ* remediation of soil and ground water.

Confidential Client
Illinois
Heritage was retained by a major Chicago developer when solvent contaminated soils were discovered in the course of construction of a ten story office building. Heritage conducted a limited excavation of selected areas of the more heavily contaminated soils and conducted a subsurface investigation of the site to include soil borings and test pits. Subsequently, and on a fast track basis Heritage designed a soil venting system which was incorporated into the overall building design to allow construction to continue by the developer.

Confidential Client
Ohio

A real estate transaction associated with a shoreline development project prompted a site investigation at a closed rubber manufacturing facility adjacent to Lake Erie. Historical aerial photograph searches and a ground-water investigation revealed past land use activities involving fertilizer manufacturing, onsite dumping of heavy metal containing foundry sands and ceramic products, UST releases and releases from drum storage areas of plasticizer compounds and volatile organic compounds. Heritage worked with legal counsel to make regulatory interpretations and to develop a voluntary cleanup plan.

Confidential Client
Indiana
A project for a screw manufacturing facility involved a non-hazardous wastewater seepage pond, next to a closed county landfill, both of which were leaching heavy metals, oils, trichloroethylene and its degradation byproducts. This project included environmental audits, regulatory compliance assessments, initial site sampling activity, installation of soil borings and 20 ground-water monitoring wells, ground-water pump tests, agency negotiations, strategy/ alternatives development, submission of draft and formal engineering reports, evaluation of off-site residential drinking water supply wells, and development of strategies and cost estimates for potential remedial alternatives. Remediation work has included removal of an underground storage tank, development of an ultrafiltration pilot plant for treatment of previously untreated plant wastewater, and dredging, filter pressing and disposal of 1800 tons of trichloroethylene contaminated sludge and evaluations of well-head protection zones for new production wells.

Crystal Flash Petroleum
Mooresville, IN
Heritage provided emergency ground-water recovery services for a petroleum marketer that discovered the release of 20,000 gallons of unleaded gasoline. The service station was located in a metropolitan area with residences adjacent to the property. Initial response activities included the establishment of a residential and sewer monitoring program for free product and gasoline vapors. This monitoring

was conducted with the aid of the local fire department and with state environmental agency oversight. During the first week of the response, numerous soil borings, product recovery wells and a soil vapor extraction unit were installed and recovery activities were initiated. Unique geologic controls on the migration of the free product lens, migration of gasoline vapors and the shallow and transient groundwater conditions required installation of a variety of wells for optimum efficiency of the recovery systems. Additional activities included the development of a work plan and plans for investigation and corrective actions offsite. The entire project was conducted with only minimal disruption of the station operations.

Treatment Systems

Treatment expertise is one of the principle reasons Heritage is sought out. It has invested heavily in research and development to support and continually improve its permanent treatment facilities. Each year these plants treat millions of gallons of waste.

In recent years, Heritage has been applying its treatment knowledge and technology to remediation projects. In many of these projects it is impracticable to transfer the waste to fixed treatment facilities due to the volume of material or its unusual form. With the new RCRA Land Ban requirements, offsite treatment and incineration costs are making onsite treatment options more attractive. Sometimes, the most cost effective solution may be to construct portable or temporary treatment systems that can be dismantled after the waste has been treated.

From Heritage's experience with on-site treatment, a number of standardized, portable systems which can be rapidly mobilized have been developed. Special custom systems can be fabricated and made field ready in short order.

Heritage's standard inventory of portable treatment equipment includes:

>Mobile sludge centrifuge
>Thermal desorber system
>Filter presses
>Carbon filter cells
>Mixed media filters
>Ion exchange columns
>Clarifiers
>Compatibility mix tanks
>Air stripper
>Neutralization tanks
>Aeration tanks
>Hydrocarbon separation units
>Portable storage vessels
>Sludge filtration units
>Soil vapor vacuum extraction units
>Biotreatment modules

Heritage also designs, installs, and operates temporary and permanent treatment systems at active manufacturing companies that need to improve their existing pretreatment, or sludge dewatering capability. These systems can also replace an existing system while the permanent one undergoes maintenance or improvements.

Though classified as temporary, some systems such as groundwater treatment or *in-situ* bioremediation units, are operated for a number of years. Heritage operates several of these systems throughout the Midwest.

A representative number of these treatment projects is shown in the following listing.

Selected Treatment Project Experience

Shell Oil Co.
Wood River, IL
Heritage constructed a $2.7 million sludge dewatering facility at the Shell Wood River refinery in 1988. The system was originally designed to treat 200 gpm of API sludge and DAF flow on a 24-hours per day, 7 days per week basis. The system includes three large plate and frame filterpresses, oil separation equipment, and a waste storage tank. The facility has been modified to handle biological sludges and to perform cake fuels blending for cement kiln disposal. Heritage has continued to operate the facility for Shell over the past nine years.

Marathon Oil Company
Indianapolis, IN

Heritage had routinely performed industrial maintenance, vacuum-truck cleaning and emergency response spill cleanup activity for the refinery. In 1993, Heritage took over the operation of their new stormwater treatment system. Heritage also started up and operated their new PLC-controlled API/DAF wastewater treatment facility on a contract full-time basis. During this period of operation, Heritage installed a sludge centrifuge, and low temperature thermal desorption dryer system at Marathon. That system treated over two million gallons of various sludges during the one year of operation prior to refinery shutdown.

Borg Warner Automotive, Inc.
Muncie, IN
Heritage evaluated this large 5-acre manufacturing facility for the best means to segregate oily process water from non-contact cooling water and stormwater. The system included a unique vacuum collection system to remove the concentrated process rinse water from the much larger flow of "clean" water. These concentrated wastes were treated in a 70 gallons per minute ultrafiltration system. Facility modifications were also made to the existing API separator and sludge handling system to replace the lagoons and drying beds with thickening tanks. The $2,000,000 facility upgrade has operated successfully since its startup in the fall of 1995.

Chromium Electroplater
Fond du Lac, WI
Established temporary pretreatment system for chromium electroplater. Reduction of hexavalent chromium and precipitation of heavy metals.

Crystal Flash Petroleum
Indianapolis, IN
Performed *in situ* bioremediation of approximately 20,000 yards of petroleum contaminated soil and area ground water at a bulk fuel storage facility. Heritage designed and constructed an *in-situ* bioremediation system to successfully reduce levels of contamination.

National Trucking Company
Fenton, MO
Approximately 20,000 gallons of diesel fuel was released into a tank farm containment system. Initial efforts recovered all but 300 gallons. Heritage performed in situ bioremediation to effectively remove and treat the hydrocarbon contaminants without disturbing the tank farm.

Automotive Service Co.
Chicago, IL
Designed and installed gasoline recovery and groundwater treatment system, with soil vapor sensing at vehicle maintenance center.

Screw Manufacturer
Indiana
A screw manufacturer was discharging oily detergent parts washer wastewater to an on-site seepage pond. Heritage performed an on-site pilot plant study to prove that an ultrafiltration system would handle the client's wastewater. The Heritage study resulted in optimization of the existing washing operation and a proposed system that would recover waste oil and regenerate a detergent solution for reuse within the washer system. Heritage's process design and the associated capital and operating cost estimates were used as a basis for client system procurement.

Former Chemical Plant
Moundsville, WV

Heritage was contracted by a large national chemical manufacturer to provide temporary wastewater treatment services for contaminated rainwater and washwaters generated during the demolition of a large chemical manufacturing plant in West Virginia. The major contaminants of concern were 2,4-toluene diamine (TDA), toluene diisocyanate (TDI), and 1,2-dichlorobenzene (DCB). Heritage also had to meet discharge requirements for phenol, total phenols, 2-nitrophenol, 1,2,4-trichlorobenzene, TOC, total cyanide, pH and color. Heritage mobilized a package clarifier, sand filter and a carbon adsorption system to the site along with four above ground holding tanks, chemical mix tanks, submersible pumps and portable generator. Contaminated wastewater was collected in Heritage's mobile vacuum unit, and placed in two HDPE lined temporary tanks constructed by Heritage. The batch treatment system consisted of chemical addition/ coagulation, clarification, sand filtration, and carbon adsorption, after which the treated water was held in two lined tanks for sampling and discharge. Overall, Heritage successfully treated 81,500 gallons of contaminated rainwater and washwaters to meet discharge specifications, maintained demolition project schedule, and disposed of all contaminated sludges and carbon.

Confidential Client
Newark, NJ
Heritage was awarded the project for detailed design and installation of on-site treatment systems at this greater Newark, New Jersey solvent manufacturing facility. The containment and collection systems target free phase floating and sinking oils/solvents and VOC and PCB contaminated ground-water. Heritage installed ground water and collection wells, clarifiers, oil/water separators, carbon filters, air strippers, and an incineration unit as part of this system. Building decontamination, new sewer installation and soil vapor extractor installation have also been performed by Heritage at this site.

Illinois EPA

Kankakee, IL
Destroyed cyanide, treated chrome and neutralized corrosives at abandoned plating facility.

USEPA-Region V
Greenup, IL
Carbon treated PCB contaminated lagoon and runoff were treated at an abandoned waste disposal site.

Illinois EPA
Chicago, IL
Designed and operated a cyanide destruction system for one million pounds of x-ray film chips.

Major Automotive Manufacturer
Massena, NY
Bench scale testing and diatomaceous earth pre-coat pressure filtration of PCB/oil contaminated water prior to activated carbon filtration for NPDES discharge.

Metal Fabricator
Arkansas

Heritage performed bench scale testing on a client's zinc phosphate washer systems to design a treatment system to meet the new EPA electroplating/metal finishing effluent guideline pretreatment standards. Heritage then designed a simple batch chemical pretreatment system which the client installed easily with the aid of local contractors. Heritage filed a baseline monitoring report (BMR) and total toxic organics (TTO) management plan to meet EPA requirements. Heritage also negotiated a discharge permit and monitoring program with the local POTW. Heritage subsequently provided a routine monthly monitoring program and provided operations support during the successful start up and operation of the system until the plant was closed several years later. The system reliably met the EPA limits during its operation.

Egg Breaking Plant
Mentone, IN
An egg breaking plant was discharging process wastewater to a creek with no treatment. The City also had no treatment system. Heritage performed a wastestream characterization and evaluated several potential treatment and discharge alternatives for the client. Due to the availability of suitable farmland in close proximity to the site and the high nitrogen loading inherent in the wastestream, Heritage recommended an anaerobic/aerobic lagoon treatment and storage system followed by a spray irrigation land application system. After completing a short term pilot study, Heritage prepared permit applications for the wastewater treatment facilities and for the land application facilities. The work included a hydrogeological assessment of the site. During subsequent public hearings on the project, Heritage addressed odor control concerns. The treatment facilities have been constructed and successfully operated by the client.

Lab Pack Services

Heritage provides a comprehensive Lab Pack program which integrates its field work and treatment centers. All aspects of the service including analyses, packaging, documentation, transportation, and disposal of waste are tailored to the client's needs.

After an inventory review, Heritage will classify and segregate the waste in accordance with Department of Transportation (DOT), Environmental Protection Agency (EPA), and specific disposal facility guidelines.

Heritage supplies trained field chemists to properly sample, package, label, and manifest the drums in full compliance with state and federal regulations. Heritage provides permitted and licensed hazardous waste transportation of the waste to Heritage Treatment Center (HTC).

Once the wastes have been accepted by HTC they will be "depacked" and the compatible waste streams bulked for treatment, recycling, or fuels blending/incineration, while minimizing the amount of hazardous waste landfilled.

The benefits of the Heritage Lab Pack include classification, segregation, packaging, labeling and manifesting executed in full compliance with state and federal regulations. Cost effective service is performed by expert personnel who do this every day.

Classification

This step is the key to proper lab pack service since it assures you of compliance with all U.S. Department of Transportation regulations for the shipment of hazardous materials as well as those of the U.S. EPA and state regulatory agencies.

To be done properly, classification requires considerable expertise and time. Because Heritage experts do this every day, they are efficient and cost effective, requiring far less time than those unfamiliar with classification procedures.

Specifically, classification consists of identifying each container and locating it on the list of hazardous materials in the DOT regulations, 49 CFR 172.101.

From this list the following information is determined.

1. DOT Shipping Name of Material
2. Hazard Class
3. Identification Number
4. DOT Label(s) required
5. Package specification

Then, the EPA waste code for the material is determined from EPA regulations. For material labeled with trade names only, the chemical name is researched to appropriately classify the material.

Unidentified materials are field tested to provide sufficient information to assure proper handling and disposal.

Packing

Each chemical container is placed in a lab pack drum with other compatible chemicals. Materials in each drum are isolated and cushioned by an absorbent material. Additional absorbent is added to each drum to assure absorption of liquids in case of breakage. Materials are normally packed in various sizes of drums depending upon the volume of waste to be packed.

Heritage supplies the packaging materials and ensures that the final package meets all specifications, including those for marking, labeling, and manifesting.

Paperwork requirements are extensive. Therefore, the following documents are properly completed prior to shipment:

1. An inventory of each lab pack drum contents.
2. A summary sheet showing EPA waste codes and DOT hazard class for each lab pack.
3. A manifest for each shipping - this is required by state and federal laws.
4. A summary sheet, as necessary, showing EPA waste codes for the entire shipment.
5. A DOT shipping label for each lab pack.
6. A hazardous waste label for each lab pack.

Transporting

Heritage provides fully permitted trucks with drivers trained in handling hazardous wastes to transport lab packs.

Waste Treatment or Disposal

Heritage's philosophy is to manage the disposal of your waste in the most environmentally sound and appropriate manner possible while minimizing the amount of hazardous material landfilled. Inorganic wastes such as acids, bases, cyanides, and salts will be treated at the Heritage Treatment Center in Indianapolis, Indiana. Non-Halogenated solvents and oils will also be processed at Heritage for reuse as a supplemental fuel by EPA permitted kilns. Organic material, highly toxic or reactive material is disposed of at a Heritage approved, RCRA permitted, high temperature incinerator. Heritage has contracts with other approved RCRA facilities which meet Heritage assurance standards should material be encountered which requires specialized disposal (i.e. explosive or radioactive material).

De-Pack Program

The Heritage Lab De-Pack Program is capable of handling a variety of small containers of chemicals and products found in the industrial and commercial community.

As with other materials accepted at Heritage, materials accepted in the Lab De-Pack Program will be treated, not directly landfilled, therefore substantially reducing generator liability. This aspect of the Heritage program makes it a much more attractive option for the responsible management of secondary materials. Materials received under this program will be processed at the Heritage Treatment Center in Indianapolis. All containers will be decontaminated (triple rinsed) and properly disposed. Rinseate is collected and subsequently treated at Heritage.

Materials coming into Heritage as lab packs must be approved by the Lab Pack department. The Lab Pack Container Contents forms will be reviewed by Degreed Lab Pack Personnel. The materials submitted for acceptance (Waste Stream Analysis and completed Container Contents forms) will be examined and all information available, Material Safety Data Sheets via Heritage Database: Merck Index, Sax Dangerous Properties of Industrial Materials and any other technical information available about the material, will be considered before treatment/disposal may be approved. The proper forms are available to customers through the Sales Department.

Generic approvals for appropriate categorized waste may be given to generators on a case by case basis. A generic approval must still comply with DOT guidelines and compatibility requirements and therefore be approved by Heritage.

Certain materials which the Treatment Center cannot chemically treat may be accepted at Heritage for storage with approval from the Corporate Disposal Manager. Heritage will then direct the waste product to the appropriate disposal facilities.

Household Waste Collection Services

Heritage also provides labor, equipment and management services for community and industry employee household hazardous waste collection events. The events, sponsored by municipalities, state agencies, and industrial clients, provide for various household cleaners, waste oils, herbicides, pesticides and other small quantities of household wastes to be disposed of in a safe and legal method. Heritage identifies, categorizes, packages and disposes of these materials. The complete capabilities of Heritage allow all labor, supplies, transportation and disposal to be handled through one environmental company.

The following listing highlights some selected Lab Pack and Household Waste Collection projects.

Selected Lab Pack Projects

Large School System
Indianapolis, IN
Packaged outdated small container waste from school labs and identified unknown waste for disposal.

Large Manufacturer
St. Louis, MO

Performed a 6 month lab pack project which included identification of unknown waste, packaging of low level radioactive material and disposal of reactive waste.

Large Automotive Manufacturer
Kansas City, MO
Identified and disposed of numerous unknown wastes over a 2 month period.

Large Metal Coatings Facility
Cincinnati, OH
Lab packed more than 800 drums of lab containers from a shut down facility during a 4 month period.

City of Indianapolis
Indianapolis, IN
Performed two one-day household waste collection days per year for the City of Indianapolis. Heritage has provided these events for the City annually since 1987.

U.S. Drug Enforcement Administration
Multiple sites: IL, IN, KY, MO, IA, KS
Clandestine drug laboratories. Finger printed, packaged, transported, and incinerated waste.

Indiana University
Bloomington, IN
Provided labor and lab pack consulting services for the disposal of laboratory waste.

Large Manufacturer
Ft. Wayne, IN
Characterized unknown chemicals, packaged out of date and low level radioactive waste for disposal.

Major Oil Company
Bartlesville, OK
Conducted Household Hazardous Waste Day for City of Bartlesville which was sponsored by an oil company. Various oils, household cleaners, paints, and pesticides were collected and packaged for disposal.

Package Delivery Company
Nationwide
Provided lack pack and broken container packaging and disposal services for a nationwide package/freight delivery service.

Mallinkrodt, Inc.
Nationwide
Provided lab pack services for nationwide lab chemical manufacturer by packaging used, waste and off-spec chemicals from its customers.

Mobile and Permanent Dewatering Systems

Each year Heritage dewaters millions of gallons of industrial and refinery wastes. Mobile units and treatment centers routinely dewater a broad spectrum of hazardous oily and non-oily materials. Heritage engineering provides complete design, construction and operation of temporary and permanent dewatering and treatment.

Provided removal of unknown waste and small quantity waste for disposal facilities.

Heritage filtration capabilities reduce waste volume by significant amounts on virtually any pumpable sludge. Pre-conditioning technology allows for reclassification of many streams from hazardous to non-hazardous classification. Typical materials dewatered are:

> Oily Sludges & Emulsions
> Acids/Caustics
> Hydroxide Sludge
  >Tank Bottoms
  >Biological Streams
  >Refinery & Terminal Streams
>Listed Hazardous Sludges
>Lagoons (active & non-active)
>Industrial Process Streams

Heritage integral support services for dewatering projects include proven expertise in:

>Explosion Proof Equipment
>Dredging Active Lagoons
>Viscous Sludge Pumping
>Slurrying Non-pumpable Materials
>Vapor Control
>All-weather Capabilities
>Custom Treatment Train Systems
>Sulfide Destruction

Various Technical and Performance capabilities available are:

>Solids Removal to 1 Micron
>Emulsion Breaking
>10-300 GPM Production Rates
>35-65% Solids in Dewatered Residue
>Metals Fixation
>Oil Recovery
>BTU Enhancement

Selected Dewatering Projects

Powell Duffryn
Savannah, GA
Heritage treated over 1.1 million gallons of water resulting from fire-fighting efforts, facility decontamination, contaminated storm-water and groundwater from a chemical terminal fire. Wastewater included diesel, NASH, caustic, crude sulfate, turpentine, and two acidic phosphate cleaners, with a COD of 30,000 mg/L,

700 ppm of sulfide and several percent solids. Heritage developed a unique chemical treatment system, including on-site filterpress operation and carbon adsorption to achieve over 95% COD and sulfide removal.

Shell Oil Company
Wood River, IL
This refinery needed a sludge dewatering system installed and operated to handle 120 gpm to 200 gpm of API sludge and DAF float, on an expedited basis. After bidding the project in July of 1988, Heritage was awarded the contract on August 1st. Construction started on-site on August 17th. Process equipment was started up on September 17th and the system achieved full design rates prior to the November 8th deadline. construction of the $2.7 million facility was completed by the end of 1988. The facility includes waste storage tanks, chemical mix tanks and feed systems, three elevated plate and frame filter presses, surge tanks, and oil recovery equipment. The equipment is housed within an outdoor diked area and a 7,200 square foot building including ventilation, laboratory, control room and break room. In addition to producing a quality filtercake, the facility recovers 20,000 barrels per year of oil for reuse within the refinery. Heritage has been operating this facility under contract with Shell for over nine years.

Indian Refining, LP
Lawrenceville, IL
Heritage performed two sludge dewatering projects of K051 API separator sludge at the refinery. Sludge was dewatered using a plate and frame filterpress. The filterpress cake was then blended with Heritage oil to meet cement kiln specifications. The sludge slurry was shipped in Heritage Transport paddle-wheel agitated tankers, called Robbie-Rollers, to cement kilns.

Sun Refinery
Toledo, OH
Dredge and dewater 7,000 yards of bottom oily sludge from active refinery lagoon while in service. 75% volume reduction achieved.

Phillips Lighting
Danville, KY
Custom subsurface pump and dewater 2,000 yards active NPDES settling basin while in service. TSS permit specs met throughout project.

Alcoa Technical
Pittsburg, PA
Dewater and wash filter cake for metals recovery R & D project. Water and filter cake exceeded client technical specifications.

Texas Eastern Products Pipeline
Seymour, IN
Diesel tank sludge dewatering and product recovery. 30% oil was returned to client for resale.

Mobil Refinery
Joliet, IL
Hazardous sludge neutralization and dewatering for non-hazardous disposal.

Waste Incinerator
Chicago, IL
Dewater low level PCB incinerator scrubber blow-down sludge.

Shell Oil Company
Odessa, TX
In July 1990, Heritage performed the detailed process design and equipment procurement for a sludge dewatering system for the K048 and K051 sludges. Heritage was responsible for start-up of the treatment facility in October 1990.

The facility includes a waste thickening tank, chemical and filter aid storage and feed systems, a chemical mix tank, elevated filter press and surge tank/oil recovery system. The system can also handle other wastestreams generated at the facility. Heritage entered into an 18 month contract to install and operate this system.

Petroleum Industry Services

Heritage and its sister companies have been involved with the petroleum industry for more than forty years. Today, petroleum-oriented activities of Heritage sister companies include: retail gasoline/marketing convenience store networks, asphalt distribution, specialty product refineries, and environmental services to the petroleum industry.

Heritage has developed a customized full-service approach to providing the petroleum industry with the environmental assistance that is required. Many petroleum companies have first become familiar with Heritage through Heritage's emergency response activities in responding to calls for assistance in managing spills and other emergency events at retail outlets, terminals, pipelines, refineries, and transportation (truck, rail, marine) spill sites. Heritage has a large number of continuing emergency response contracts, either specific to the requirements of an individual petroleum company or as defined by the Heritage Planned Emergency Response Services Program (PERS).

Heritage provides site investigation, underground storage tank (UST) management, and site remediation services to the retail outlet (service station) divisions of petroleum companies. Each of these services have been provided on an individual basis or on a turnkey (including design and installation of new facilities) basis depending upon the needs and policies of the specific client. Heritage's experience in all aspects of UST management provides the client with a practical, cost effective approach to this portion of retail outlet system management.

Pond cleaning and associated residue dewatering is a major portion of Heritage's activities throughout the United States. Heritage's wide range of in-house capabilities is particularly important to meeting the client's needs for regulatory agency constraints, despite frequent uncertainties of actual material characteristics and quantities.

Refinery and terminal storage tank cleaning, and associated residue dewatering have been performed by Heritage for many petroleum facilities throughout the United States. Heritage is able to meet the most demanding standards for confined space entry and benzene vapor emission standards established by clients or regulatory agencies.

Heritage is experienced in pilot testing, preliminary design, construction and operation of refinery wastewater and residues treatment/management facilities. Similarly, Heritage provides industrial maintenance services to three midwestern refineries on the basis of annual contracts.

Heritage has developed a thermal desorber treatment system for treatment of refinery sludges, similar sludges and contaminated soils for the removal of volatile and semi-volatile constituents. Heritage has a pilot

treatment system for evaluation of such wastes. Economically, this system will be viable in comparison to waste incineration for larger refineries or centralized, common or shared waste treatment systems.

Engineering evaluations, studies, and audits are performed for all portions of the petroleum industry. These include waste reuse and minimization studies, hydrogeological assessments, and other types of investigations.

Heritage draws on the support of Heritage Research Group (HRG) for bench scale and pilot testing of petroleum industry wastes when new projects or changes to existing projects are considered. Part of HRG's responsibility is for asphalt product development, QA/QC and for the development of asphalt emulsions for a sister company. These skills and experience are also applied to the breaking of oily waste emulsions by Heritage Environmental Services. This in-house resource enables Heritage to optimize the performance of its petroleum treatment systems for treatment efficiency and economy.

The following listing highlights some of the services provided to the petroleum industry.

Selected Petroleum Industry Experience

Shell Oil Company
Wood River, IL
Designed, built, and has operated since (September 1988) a 200 gpm oily waste treatment facility for a large refinery. The treatment process includes chemical conditioning, recessed plate filter pressing, CPI oil/water separation. Up to 4000 gallons per day of oil have been recovered from the influent stream.

ARCO Products Co.
Blaine, WA
Currently completing the process design of an oily waste treatment facility for a 160,000 bbl/day refinery. A high level or preconditioning of the wastestream (acid, heat) is provided as the dewatered residual solids are to be directed to a cathodic coke reclaimer for disposal.

Calumet Lubricants, LP
Princeton, LA
Designed and built (in eight days) the following refinery wastestream treatment components: wastestream segregation units; process wastestream (100 gpm) treatment including chemically enhanced CPI oil/water separators, sand filtration, chemical (H_2O_2) oxidation prior to deep well injection; stormwater retention and treatment for three mgd of stormwater flow (1 hr. retention - 25 year storm).

Shell Oil Company
Odessa, TX
Evaluated twelve oil refinery wastestreams for treatment alternatives. The wastestreams had been either disposed of in an on-site landfarm or through off-site contract disposal operations. For each wastestream, evaluated several on-site or off-site alternatives that would address BDAT land disposal restrictions. Treatability testing was performed on each wastestream and conceptual process design, capital and operating cost estimates were prepared for selected alternatives. The report served as a basis for more detailed design activity on several wastestreams.

Laketon Refining, LP
Laketon, IN
Due to pending NPDES discharge permit renewal, initiated a process design study and pilot plant program in 1989 to meet anticipated new discharge limitations, including strict new state water quality standards. The study addressed wastestream characterization, variability, activated sludge process design parameters, batch dump upset potential and treatment system enhancements for toxics control. Project activity included a process design report, NPDES permit application, water quality modeling and agency negotiations for the final revised permit. The refinery built the system and has been operating it since 1990.

Major Refinery
Chicago, IL
Heritage has been providing filter press dewatering services to a major refinery in Chicago for the last ten years. Thousands of gallons of API separator sludge and calcium fluoride sludge have been dewatered, effectively reducing the amount of sludge requiring offsite disposal and saving the client unnecessary transportation and disposal costs.

Industrial Maintenance Services

Heritage performs multifaceted services for the industrial sectors involving tank, pit, sump, painting line and process system cleaning and inspection. These services are provided on a contract or emergency basis.

Heritage has expanded its industrial maintenance services with the addition of a new operating division, Heritage Industrial Maintenance Services.

Heritage uses a number of processes to assure that the latest in innovative technology is available to its clients. One of our most advanced systems is the patented process that allows Heritage to clean lines from 6" to 72" in diameter while these lines are still in service. This process has also been used in cleaning cooling towers, thus allowing the plant to remain in operation. Heritage utilizes multiple methods, systems, and technologies incorporating remote operated television cameras and cleaning equipment, specialized vacuum trucks and vacuum rolloff boxes, and high pressure wash systems thereby providing our clients with the most efficient and cost effective approach to their project.

Heritage has competed many successful cleaning projects for municipalities, industrial clients, and engineering firms involving:

- Storm Sewers
- Sanitary Sewers
- Grit Chambers
- Clarifiers
- Digesters
- Pond/Lagoons
- Lift Stations
- Painting Lines
- Fresh Water Tanks
- Crude Oil Tanks
- Press Pits
- Cooling Towers
- Sumps
- Transmission Lines
- Telephone Ducts
- Drying Beds
- Calcified Lines

Industrial Maintenance Projects

Selected Line and System Cleaning Project Experience:

City of Houston, Kingwood,
The Woodlands, Bastop,
Smithfield, Austin,
Clear Lake, Round Rock,
Numerous Mud Districts through central and south Texas
Texas
Cleaned and televised more than 3 million feet of storm and sanitary sewer lift stations.

City of Clear Lake
Clear Lake, Texas
Cleaned Grit Chambers, Clarifiers and Digesters.

Alcoa
Texas
Cleaning cooling tower calcified lines.

Texaco, Chevron, Exxon, Numerous Independent Stations
Texas
Cleanout of Car Wash Sumps >

CORPORATE HEALTH AND SAFETY OVERVIEW

Heritage recognizes the vital importance of the health, safety, and welfare of its most valuable resource - the employees. Key considerations in Heritage's approach to its health and safety policy include the development of programs which promote consistency; standardization of equipment and procedures throughout the corporation in order to maximize the ability to interchange personnel and participation in internal joint venture projects. Special attention is afforded to each safety program component to ensure ease of implementation, function within the context of the field or operational environment it is designed for, and that it can be adequately enforced.

Heritage takes special pride in its commitment to health and safety. We share a growing awareness with the environmental community regarding the significance of a strong health and safety program by providing for optimal efficiency and economy while minimizing personal and corporate liability for Heritage and its customers.

The following sections address specific components of the Heritage health and safety program.

Standard Safety Program

Heritage has a corporate safety program with written policies which require each division to write and implement customized procedures for each of its fixed facility and field operations. Each facility has a safety and hygiene program with written procedures for the management of safety in its day-to-day operations.

Additionally, Heritage's remediation/ engineering group and Heritage Transport maintain a driver safety program in accordance with the requirements of Federal and State Departments of Transportation.

The standard safety program for the remediation and engineering group is actually a comprehensive collection of specific procedures and practices which detail exactly how tasks are to be performed in the field and how crews are to be prepared and monitored.

Each Heritage group has an individual designated with the overall responsibility for health and safety. Additionally, there is a Director of Corporate Safety for all of the Heritage companies, a Corporate Safety Manager for Heritage and a Heritage Corporate Industrial Hygienist. The Heritage Safety Manager is a Certified Safety Professional by the Board of Certified Safety Professionals and the Heritage industrial hygienist is a Certified Industrial Hygienist by the American Board of Industrial Hygiene.

Medical Monitoring Program

The medical monitoring program is designed to protect the long and short term health of Heritage employees. This is accomplished by the establishment of baseline levels on certain body functions at the

pre-employment physical and the subsequent monitoring through annual physicals. Any variance from baseline levels identified by these tests is then followed with further specific testing to identify the source of the problem. To assist in this monitoring, records of exposure to chemical hazards are also kept.

The program is also designed to evaluate the employees ability to perform remediation work, wear respirators, drive vehicles, etc. This includes evaluation of factors that could affect such things as heavy lifting, heat stress, hearing, eye sight, and general physical condition.

The final part of the program is designed to enable Heritage to comply with the regulatory requirements for medical monitoring that are required. These include, but are not limited to, the OSHA Lead Standard, Respiratory Requirements, Hazardous Waste Operations Exposures, and the Department of Transportation driver requirements.

Records of all parts of this program are kept in accordance with applicable regulations. Employees who wish to see their records may do so under regulations and upon request.

Pre-Employment Physicals

All employees who work with hazardous materials receive physical exams prior to the start of work. Below is a listing of the tests that are performed.

General medical history
Occupational medical history
Respiratory medical history
Vision screen (titmus or equal)
Hands on exam by occupational medicine physician
Audiogram
Substance abuse (drug screening per DOT guidelines
Spirometry (pulmonary function)
Resting EKG
Chest x-ray, PA & Lateral (every three years)
Complete blood count
SMAC - 24 (blood chemistry)
Stress EKG (if over 40 or examining doctor requests)
RBC cholinesterase
Methemoglobin
Microscopic urinalysis
Serum PCB
Blood lead with zinc
Urine screen for heavy metals protoporphyrin
DOT physical exam (if requested).

Annual Physicals

All employees who work with hazardous materials receive mandatory annual physical exams. Annual exams allow for tracking of trends in the buildup of chemicals in the body or other compromises of body functions. In this way, problems may be noticed and treated prior to the development of chronic problems associated with occupational hazards. Most of the individual tests performed during a pre-employment physical are also conducted in the annual exam. Substance abuse screens are conducted annually, but not at the time of the annual physical exam. All drug screens are conducted on a randomly scheduled basis.

Supervisors receive additional training in accident investigation, report completion, supervision of operations and field workers, and safety supervision.

Annually, each employee receives a minimum of 8 hours refresher health/safety training per 29 CFR 1910.120.

Additionally, monthly training and safety sessions are held to familiarize employees with new equipment, hazards, technology, and to reinforce prior training.

Project Site Safety Plans

For projects falling under the scope of 29 CFR 1910.120, project site safety plans are developed and communicated to all workers involved in the project. For many other projects, the safety plans may be developed and used even though not required. Most projects will have some form of written site safety plan giving the scope of work, hazards expected, protective equipment, emergency contacts and safety measures required as part of the plan.

These project site safety plans are developed prior to starting the project by doing a site characterization. Such development would include, but not limited to, the following:

Sampling of soil, product, and/or air
Analysis of samples
Hazard determination
Research hazards for possible engineering and/or administrative controls
Research hazards for personal protective gear
Locate emergency services
Determine exclusion zones, decontamination zones and clear zones
Determine appropriate emergency procedures

Safety Audits

Each company within Heritage conducts internal audits of safety procedures and operations. Additionally in Heritage, the Corporate Safety Manager conducts an extensive audit of each division office and their operations. Such audits include observing:

>DOT records
>Medical records
>Accident/injury/illness records
>Equipment maintenance
>Training records
>Division site housekeeping
>Inspection records
>Work site safety
>Follow-up on previous recommendations

The division audit reports are forwarded on by the Corporate Safety Manager to the Vice President of Heritage and to the Division Director. The reports contain the observations of the Safety Manager at the time of the audit and his recommendations for improvement. Additionally, the Safety Manager may cite the division for violation of a particular statute or regulation and demand that such violation be corrected.

The corporate Safety Manager makes regular visits to each division office at least monthly to assist the division and the Technical Services Manager in

keeping their records current, developing safety procedures to implement the corporate safety policies, and assisting with training.

Additionally, division Technical Services Managers conduct periodic work site safety audits to verify all aspects of the site specific health and safety plan have been implemented. Depending on the complexity of the project, the Corporate Industrial Hygienist may conduct this formal audit. >

PERSONNEL RESOURCES

The reputation of Heritage is attributed to its dedicated staff. Heritage employs up to 900 employees, many of whom have technical and advanced degrees. As the following lists indicate, Heritage believes in hiring well educated, experienced persons for all positions in the organization.

Heritage is staffed and managed with people holding degrees in:

Environmental Engineering
Chemistry
Civil Engineering
Biology
Mechanical Engineering
Industrial Hygiene
Biological Engineering
Biochemistry
Environmental Sciences
Aquatic Toxicology
Geology
Agronomy
Hydrogeology

With Heritage's wide range of services, its technical and field services staff has obtained extensive experience in designing and implementing remediation services. The engineering and technical staff's valuable field experience (gained through the execution of thousands of projects) is demonstrated in their efficient and cost-effective project designs.

Heritage's staff has developed proficient expertise in a variety of service areas including:

> Enforcement case technical support
> Contaminated site cleanup services
> Geologic and hydrogeological services
> Environmental auditing/real estate assessment services
> Storage tank management services
> Wastewater compliance services
> Hazardous waste compliance services
> Industrial hygiene services
> Drum/lab pack services
> Onsite treatment services
> Facility/equipment decontamination services
> Environmental engineering/ consulting services

Continuing education and training is a fundamental part of the company's personnel development policies. Personnel participate in periodic safety training. Training topics include:

> Proper respirator fit
> Respirator care and cleaning
> O_2/LEL meter use and calibration
> Confined space entry
> Hot work precautions
> Supplied air regular maintenance
> Equipment operator rules

Special seminars are held periodically to update the technical staff to new regulatory requirements, current developments in environmental management, new equipment, computer software, or research which may benefit the company's operation.
These efforts ensure that each person in the field or on a project is capable and prepared to perform their duties in a safe and proficient manner.

HERITAGE ENVIRONMENTAL SERVICES SENIOR MANAGEMENT STAFF

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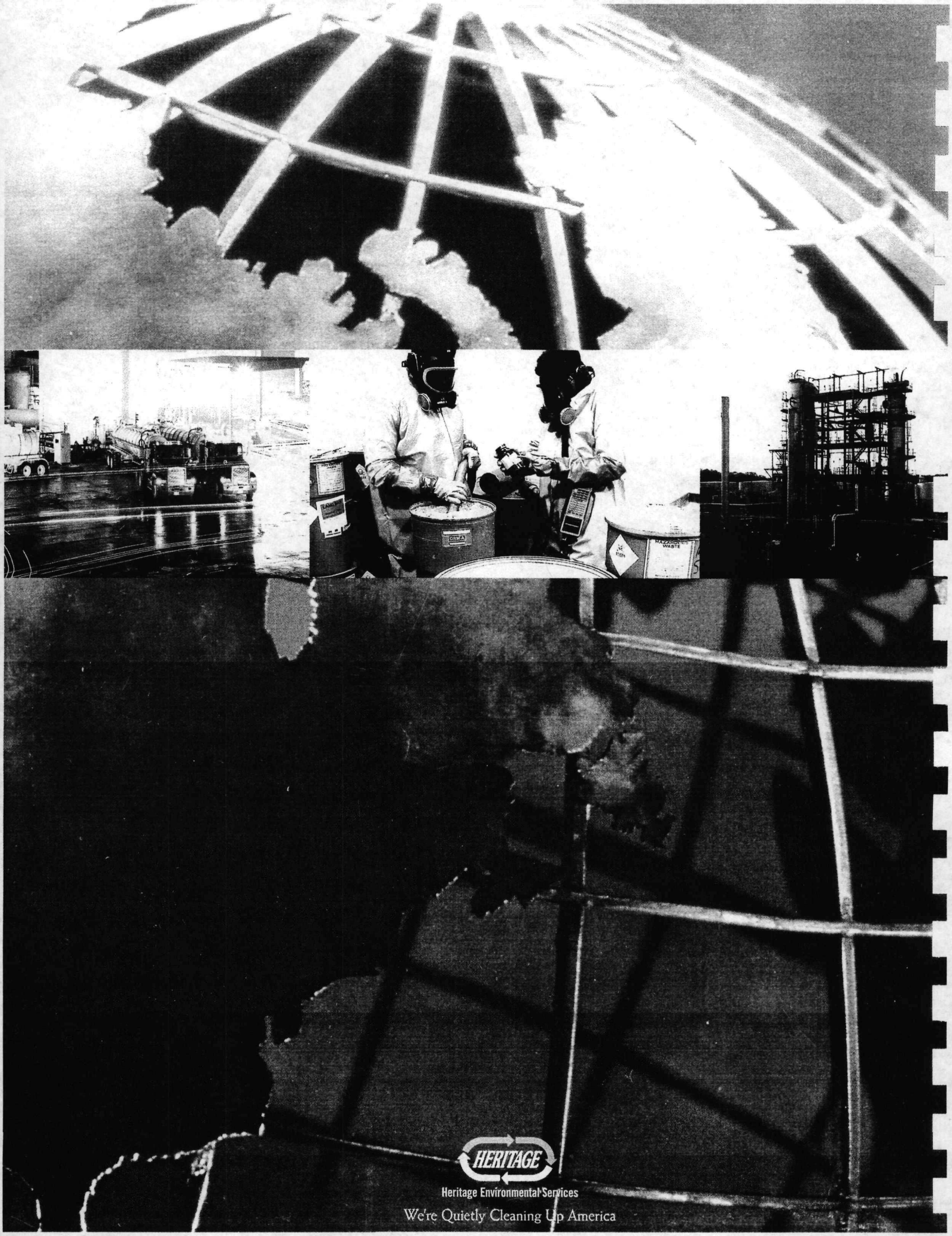
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Heritage Environmental Services
We're Quietly Cleaning Up America